The Forest Equipment and Services Market in Malaysia

December 2000

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December 2000

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THE FOREST EQUIPMENT AND SERVICES MARKET IN MALAYSIA

Team Canada Inc - Équipe Canada inc

EXECUTIVE SUMMARY

Forestry has long been one of Malaysia's most rapidly growing economic sectors. Malaysia is the world's largest exporter of tropical wood, accounting for 70% of the global supply of raw logs. Sabah and Sarawak, the two Malaysian states on the island of Borneo, are the main logging regions in Malaysia.

Malaysia is moving from its traditional role as a supplier of sawn logs and timber to being a manufacturer and provider of value-added wood products such as plywood, wood moulding, particleboard and furniture. With Malaysia's timber industry heading toward greater secondary and tertiary processing activities, local companies are currently starting to invest substantially in more value-added and automated local processing machinery and technologies for wood products.

Although the supporting facilities for timber harvesting and processing are becoming more developed and are utilized by several timber companies, there remains a need for more advanced and newer equipment, especially for the small and medium-sized timber companies. Malaysia's local forestry equipment and machinery industry is very underdeveloped, with only a small number of firms producing a few woodworking equipments. The local demand for equipment, machinery and services are still largely met by imports, providing great opportunities for potential Canadian exporters of forestry equipment and/or services. Government officials are actively inviting foreign investment and the establishment of manufacturing facilities. Promising sub-sectors include sawmill equipment, kiln equipment, and environmentally friendly harvesting and silviculture machinery and technologies.

Forest sustainability is a major concern in Malaysia, whose government is actively promoting sustainable forest management and environmentally sound forest practices. Canadian companies will find that some of the best export opportunities for forest equipment and services are in the area of environmentally sound, reduced-impact forest systems.

There is also a growing need in Malaysia to acquire equipment and services to build infrastructure that promotes quicker and more efficient timber extraction. Immediate opportunities also exist for Canadian equipment or consulting companies capable of supplying process control systems, and automated systems for improvements in energy

savings, production efficiency, product quality, waste reduction, and pollution abatement.

Malaysia's major international suppliers of forestry machinery and equipment products are currently concentrated in Japan, Taiwan, Germany and Italy — which have all established long-term relationships with Malaysian distributors and agents. Canadian suppliers are regarded as latecomers and as such, the Canadian ability to provide good after-sales service is not yet proven.

To succeed in this country, it is therefore essential that Canadian companies: establish a local presence through strategic partnerships; appoint a local distributor trained in supporting the products; and offer a high quality of service. Success in this market also stems from frequent contact with major buyers and clear commitment. Contacts and familiarity are indispensable when equipment and services are offered under contract, and customers must have the supplier's guarantee of after-sales service and replacement parts.

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THE FOREST EQUIPMENT AND SERVICES MARKET IN MALAYSIA

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MARKET OVERVIEW

Malaysia, comprising Peninsular Malaysia (West Malaysia) and the Eastern Malaysian states of Sabah and Sarawak on Borneo island, is strategically located in the heart of Southeast Asia, one of the world's fastest-growing trade and economic regions. Peninsular Malaysia covers an area of 131 598 km^2 and has a population of 16.7 million (representing about 79% of the total population in Malaysia), while Sabah and Sarawak have a combined area of 198 160 km^2 and a population of approximately 4.4 million. The two regions are separated by 540 km of the South China Sea.

The forestry and timber sector in Malaysia plays a vital role not only in the socio-economic development of the country but also in ensuring economic stability. The timber industry has long contributed to the country's export earnings, gross domestic product (GDP) growth, and employment opportunities. In 1998, the timber industry contributed $5.1 billion[1] or 7% of the country's export earnings and provided employment to about 250 000 people. In the states of Sabah and Sarawak, logging and timber still remain the largest export earner.

The globalization of the Malaysian forest industry over the past decade, coupled with the growing awareness of the impact of deforestation, has created both domestic and external pressures to tighten environmental standards. Environmental responsibilities, economic fluctuations and sagging commodity prices have pressured companies to make their operations more profitable, thus increasing the demand for more efficient forestry equipment and more modern techniques that are at once more profitable and more ecologically sound.

For some time, Malaysia had been a "dumping ground" for unpopular or used machinery; today, with more experienced local manufacturers, the forestry equipment industry is starting to see more exposure to new and up-to-date equipment and technologies. Nevertheless, the efficiency and productivity of Malaysia's timber processing industry still have plenty of room for improvement, especially in the areas of improving quality, optimizing recovery rates and reducing waste.

[1] All monetary amounts are expressed in Canadian dollars, unless otherwise indicated. The conversion rate to Canadian dollars is based on IDD Information Services, *Tradeline*, April 2000.

Profile of the Forest Sector in Malaysia

Malaysia's Forest Resources

Malaysia, roughly the size of Norway, has a landmass of 32.86 million hectares (330 000 km^2), of which almost 60% (approximately 19.22 million hectares) is covered with natural forests. A further 15% (5 million hectares) is cultivated by palm oil and rubber plantations. The proportion of forested land is higher in Sabah and Sarawak than in Peninsular Malaysia.

Of the total natural forest, 42% or 14.9 million hectares has been designated as the Permanent Forest Estate (PFE) and is under sustainable management. Approximately 11 million hectares of the Permanent Forest Estate are production forest, with the remaining 3.9 million hectares being protection forest. The areas that are meant for production are and will continue to be subject to sound forest management practices, in order to maintain the forest as a renewable resource. In addition, another 1.2 million hectares are set aside as national parks, game reserves and wildlife sanctuaries.

Sarawak and Sabah dominate the Malaysian forestry sector, both as producers of tropical logs and as home to the main timber companies. The remaining Malaysian states, on the Peninsular, have very little natural forest left and most of the activities are in downstream processing, value-added products such as furniture and mouldings.

The following tables indicate forest resources in Peninsular Malaysia, Sarawak and Sabah.

Table 1. Forested Area by Region, 1980, 1993-1997 (Million Hectares)

Region	1980	1993	1994	1995	1996	1997
Peninsular Malaysia	6.36	6.02	5.89	5.89	5.82	5.85
Sarawak	8.82	10.28	10.28	10.28	10.28	10.28
Sabah	5.36	4.45	4.42	4.42	4.35	4.44
Total	20.54	20.75	20.59	20.59	20.45	20.57

Source: Ministry of Primary Industries, Malaysia, 1998

Table 2. Area Opened for Harvesting, Peninsular Malaysia, 1998 (Hectares)

Permanent Reserved Forest	Alienated Land	State Land	Total
51 668	21 481	41 849	114 998

Source: http://forestry.gov.my, 1999

Forest Products

Malaysia has over 2650 tree species, of which 408 species are utilized commercially. Valued for strength, durability, texture and beauty, Malaysian timber are widely used in a variety of applications throughout the world. Malaysia supplies about 80% of the tropical sawn timber to the international market, and is the second-largest tropical timber exporting nation in the world, after Indonesia. Malaysia is also the largest producer and exporter of palm oil: Malaysia's 1998 production was 8.3 million tonnes or almost half of the world's production (16.7 million tonnes).

Malaysian timber can be separated into three main categories:

Heavy hardwoods:

- have densities of 800 to 1120 kg/m^3 at 15% moisture content and are naturally durable, containing substances which repel wood destroying agents; and
- are mainly used in heavy construction and flooring, railway sleepers, door and window frames.
- Species include *Balau*, *Chengal*, *Kekatong*, *Merbau* and *Resak*.

Medium hardwoods:

- have densities of 720 to 880 kg/m^3 at 15% moisture content; and
- are used for construction, parquet flooring, plywood/veneer, panelling, windows, doors and frames.
- Species include *Keruing*, *Mengkulang*, *Kembeang*, *Meranti* and *Merpauh*.

Light hardwoods:

- have densities of 400 to 720 kg/m^3 at 15% moisture content; and
- are generally "utility" timber but are also excellent for first-class joinery work, cabinet making and decorative panelling.
- Species include *Bintanfor*, *Machang*, *Meranti*, *Nyatoh* and Ramin.

Table 3. Percentage of Production and Consumption of Logs by Species Group, Peninsular Malaysia, 1998

	Light Hardwood	Softwood	Heavy Hardwood	Medium Hardwood
Production of Logs	63.5%	0.05%	8.46%	27.5%
Log Consumption in Plywood/Veneer Mills	71.4%	11.5%	0.5%	16.9%
Log Consumption in Sawmills	55.5%	7.0%	9.2%	28.6%

Source: http://forestry.gov.my, 1999

In product terms, while the export of value-added product such as furniture and plywood has increased significantly over the last few years, there has been a visible drop in the export of Malaysian logs and sawn timber[2]. In 1999, Malaysia produced a total of 4.18 million cubic metres of tropical hardwoods, compared to 5.2 million cubic metres and 7.2 million cubic metres in 1998 and 1997, respectively. Most of the exported raw timber comes from Sabah and Sarawak, while PeninsularMalaysia provides finished goods such as plywood.

Malaysia is therefore moving from a traditional role as a supplier of sawn logs and timber to a provider of value-added wood products. The second Malaysian industrial master plan (IMP2,1996-2000) identified wood-based industries as one of 12 priorities for investment. The three major downstream wood-based industries targeted for increased growth are panel products, wood mouldings and furniture.

Other areas identified for investment promotion include secondary and tertiary processing industries such as timber treatment plants, kiln drying plants, wooden houses prefabrication plants, laminated board plants, boxes and crates plants, pencil factories, match factories and parquet flooring plants.

[2] Timber popularly used are Meranti, Keruing, Kempas, Merbau, Mersawa, Balau, Kapur, Nyatoh, Sepetir and Jelutong.

Table 4. Production of Logs ('000 Cubic Metres)

Year	Peninsular Malaysia	%	Sabah	%	Sarawak	%	Malaysia
1980	10,453	37.4	9,064	32.5	8,399	30.1	27,916
1990	12,818	32.0	8,443	21.1	18,838	47.0	40,099
1991	12,285	30.8	8,163	20.5	19,411	48.7	39,859
1992	13,031	29.9	11,633	26.7	18,848	43.3	43,512
1993	11,234	30.1	9,300	25.0	16,735	44.9	37,269
1994	11,389	31.9	7,965	22.3	16,318	45.7	35,672
1995	9,030	28.4	6,520	20.5	16,292	51.2	31,842
1996	8,418	28.0	5,638	18.7	16,038	53.3	30,094
1997	7,379	23.7	6,959	22.3	16,823	54.0	31,161

Source: Malaysian Timber Council, http://www.mtc.com.my, 1998

A recent report by the Malaysian Timber Industry Board (MTIB) indicated that major contributors of Malaysia's exports of wood-based product are: plywood (31%), sawn timber (22%), logs (16%), and wooden furniture (15%). Others included: mouldings (5%), veneer (5%), builders requirements (3%), medium-density fibreboard (2%), dressed timber (1%), rattan furniture (0.6%), particleboard (0.4%), and wood chips (0.05%).

In Peninsular Malaysia, forest resources are managed at the State level (e.g. cut quotas) with the federal government having a co-ordination and policy role. Sabah and Sarawak are autonomous states and therefore the State governments are solely responsible for forestry management and policy within their borders.

Table 5. Malaysia's Forest Products Production, 1995-1998

	Units	1993 ('000)	1994 ('000)	1995 ('000)	1996 ('000)	1997 ('000)	1998 ('000)
Roundwood	m^3	44788	43377	42855	43027	38918	29297
Industrial Roundwood	m^3	38004	36433	35753	35770	31507	21735
Sawlogs + Veneer Logs	m^3	36945	34885	34187	34187	29907	20207
Pulpwood + Particles	m^3	613	788	788	788	788	0
Other Industrial Roundwood	m^3	743	760	778	795	812	828
Wood Fuel	m^3	6784	6944	7102	7257	7411	7562
Sawnwood	m^3	9395	8858	8382	8382	7326	5241

	Units	1993 ('000)	1994 ('000)	1995 ('000)	1996 ('000)	1997 ('000)	1998 ('000)
Sawnwood (C)	m^3	85	100	150	150	150	150
Sawnwood (NC)	m^3	9310	8758	8232	8232	7176	5091
Wood-Based Panels	m^3	5173	6030	6556	6570	6462	5914
Veneer Sheets	m^3	2122	2067	1800	1800	1165	760
Plywood	m^3	2821	3613	3996	4100	4447	3904
Particle Board	m^3	150	150	500	300	150	250
Fibreboard	m^3	80	200	260	370	700	1000
Wood Pulp	t	88	103	105	102	91	112
Semi-Chemical Wood Pulp	t	88	103	105	0	0	0
Chemical Wood Pulp	t	0	0	0	102	91	112
Other Fibre Pulp	t	1	1	1	1	1	1
Recovered Paper	t	102	102	102	102	102	102
Paper + Paperboard	t	663	574	665	674	711	761
Newsprint	t	0	2	2	2	3	2
Printing + Writing Paper	t	201	159	162	145	126	123
Other Paper + Paperboard	t	462	413	501	527	582	636

(C) Coniferous
(NC) Non-Coniferous
(m^3) Volume Units - Cubic Metres
(t) Weight - Metric Tons
Note: The above statistics are unofficial estimates.
Local production figures are only available in metric tons.
Source: FAOSTAT database, Food and Agriculture Organization of the United Nations, 2000

Plantation Forests

Although regeneration after logging generally occurs naturally in Malaysia's moist, tropical climate, regeneration is assisted through silvicultural methods including enrichment planting where necessary.

The Malaysian forestry ministry plans to reduce timber production from natural sources over the next few years and increase the use of timber estate plantations. At present, plantation forests cover an approximate area of 150 400 ha (excluding palm and rubber

wood plantations) and are located primarily in Peninsular Malaysia with lesser amounts in Sabah and Sarawak.

Acacia and eucalyptus are common species in plantation forests. Other plantation tree types include teak and sentang.

Agricultural Tree Crops

Malaysia has a vast area of fast-growing agricultural tree crops, such as rubber and oil palm, which are increasingly important sources of timber materials. These perennial tree crops cover some 4.44 million hectares in Malaysia, where about 1.6 million hectares constitute rubberwood (commonly known as rubber trees) plantations. Large-scale planting and replanting of fast-growing rubber trees is occurring to ensure an ample and adequate supply of raw materials.

While rubberwood plantations have been mainly established for rubber production, research and development has been largely responsible for the commercial development of rubberwood as a new source of timber — 80% of furniture made in Malaysia comes from rubberwood. Similarly, research and development is showing promising results in the utilization of the fibre used for medium-density fibreboard (MDF) production, and plywood mills have even begun using rubberwood to replace native hardwoods. The industrial use of rubberwood has become so important to the Malaysian industry that it really overshadows the rubber production function, and growers have modified their rotations to emphasize woodfibre production.

Although Malaysia is already in the forefront of rubberwood processing technology — being a world pioneer — there still exist several opportunities for Canadian companies to sell sawing equipment to process the palm and rubber trees.

Principal Forestry States

Sarawak

Sarawak is the most important timber producing state of Malaysia, accounting for 43% of national log output. Some of the largest Malaysian logging companies are also based in Sarawak. Sarawak's forests, covering an area of 8.71 million hectares, are also one of the state's most important resources and assets, producing timber and a multitude of forest products. Earnings from plain plywood is the third most important export commodity of Sarawak, after liquefied natural gas and crude petroleum. Logging activities are widespread throughout Sarawak.

Sarawak's forests:

- about 69% or 6 million hectares of Sarawak's total forested land area has been designated as a permanent forest estate and has been licensed to logging companies. The PFE is established to regulate the harvesting of forests and to ensure sustainable timber production.

- about 12% or 1.03 million hectares of the total natural forest in Sarawak has been designated as totally protected areas (TPA), which include national parks nature reserves and wildlife sanctuaries.

- About 14% or 1.7 million hectares of natural forest are left as State land forest. This category of forests refers to land not reserved permanently as forests under the *Forests Ordinance*.

From a mere exporter of logs in its early days, Sarawak has become one of the world's largest exporters of tropical hardwood timber. The timber industry in Sarawak has multiplied into numerous primary, secondary and tertiary processing activities, including sawmilling and the manufacture of plywood, dowels and mouldings, laminated boards, medium density fibreboard, particleboard, and furniture.

Today, forest industries in Sarawak contribute to 25% of the gross state product and more than half of the State government revenue.

Under sustainable management programs, Sarawak's forests can produce around 9.1 million cubic metres of logs annually, and the State aims to utilize much of this for value-added timber processing activities. To promote higher value-added timber processing activities, the Government has taken several measures. One of these measures includes the development of several industrial areas primarily designed to meet the requirements of integrated timber-based operations. The specialized industrial zones that have been developed for the wood-based industries are:

- Kemena Industrial Estate, in Bintulu Division;
- Tanjung Manis Timber Processing Zone, in Sarikei Division; and
- Kuala Baram Timber Processing Zone, in the Miri Division.

Although the forestry sector is not expected to register a substantial growth during the 2nd Malaysia plan period (1996-2000), due to the Government's policy to conserve as well as practise sustainable management, this sector remains one of the State's primary earners of export revenue.

Table 6. Production of Sawlogs and Sawn Timber in Sarawak, 1994-1999 (Jan.-May)

Year	Sawlogs ('000 m^3)	Sawn Timber ('000 m^3)
1994	16 317.7	1 722.2
1995	16 091.9	1 874.5
1996	16 082.7	1 598.9
1997	16 823.0	1 657.2
1998	11 306.6	1 329.7
1999 (Jan.- May)	4 928.1	571.3

Source: *Monthly Statistical Bulletin* , Sarawak, May 1999

Sabah

Being an export-oriented economy, Sabah's exports have been dependent on a narrow range of trade commodities that are predominantly raw material-based, such as crude petroleum, unprocessed timber and wood-based products. Within the wood sector, the State's dominant production and export items are sawn timber (1999 exports: 580 283 m^3), hardwood veneer sheets (1999 exports: 277 047 m^3), plywood[3] (1999 exports: 685 010 m^3) and chipboard/particleboard (1999 exports: 18 551 m^3. Sabah is also the state containing the largest area of oil palm forests in Malaysia, estimated at 842 496 ha in 1998 (the total area of Malaysia's oil palm forests in 1998 was 3.078 million hectares). Downstream processing of palm oil products has improved tremendously in Sabah; currently there are seven palm oil refineries in operation.

Sabah has an extensive and well-managed forestry industry. Nevertheless, the State government realizes that it is vital for Sabah to enhance its competitiveness by transforming its current assets into higher value-added, consumer-oriented goods. Hence, industrialization and modernization of the State's manufacturing facilities has become an important factor in the development of a more diversified and value-added economy.

There are three broad categories of investment opportunities in Sabah's timber industry:

Category 1: processing of lower valued logs and wood residues into reconstituted wood products such as chipboard, fireboard, particleboard, waferboard.

Category 2: processing of sawn timber and veneer into higher value-added finished products such furniture, joineries and mouldings.

[3] Plywood includes blockboard

Category 3: development of forest plantations.

In line with Malaysia's National Forest Policy, intensive rehabilitation of degraded forests is also being actively implemented. The major tree planting agencies are Sabah Forest Development Authority (SAFODA), Sabah Softwoods Sdn Bhd (SSB) and Sabah Forest Industries Sdn Bhd (SFI).

Due to local production constraints and to the active logging industry in the state, Sabah remains a net importer of forestry equipment and machinery. In 1998, the machinery and transport equipment sector represented the State's leading import commodity (36.2%). There is an opportunity for Canadian firms to capitalize on this growing market.

Structure of the Forestry Machinery and Equipment Sector

Almost all of Malaysia's wood machinery is imported. Since 1994, Malaysia has been importing an average of $110 million worth of machinery each year, mainly from Japan and Taiwan. The over-dependence on imported machinery was exacerbated during the southeast Asian economic downturn of 1997-98 because of the appreciation of the U.S. dollar and other currencies used for payment.

The forestry and woodworking machinery manufacturing industry in Malaysia remains rather small and at an early stage of development. The existing manufacturers tend to focus on simplicity of design and provide incremental technological changes. While some of these machinery manufacturers may export to other Asian countries, most of them supply the local market and are thus captive to that market's low level of sophistication. Malaysia acknowledges the need to speed up the local development of this industry in order to produce — in the near future — a greater variety of machines and equipment.

Nevertheless, according to industry experts, there is still a clear need for Malaysia's timber industry to take steps to strengthen its local forest processing industry. While most of the wood harvesting companies, sawmills, and wood-products mills have performed well over the past years, Malaysian companies must continue to improve their processing efficiencies in order to remain competitive. In a world of rapid technology development, it is crucial for the mills to improve productivity through the use of better technology and modern management. This will help Malaysia retain its competitive edge in the world market, where it faces strong competition from other producers.

Key Factors Shaping Market Growth

Economy

Post-Asian Financial Crisis

The Asian financial crisis of 1997-98 had a negative impact on foreign, including Canadian, trade performance and opportunities in the region. The crisis resulted in an increase in the cost of consumer goods imported from Canada (due to currency devaluations in countries such as Thailand, South Korea, Indonesia and Malaysia) and a subsequent decrease in the demand for Canadian imports. However, most Asia-Pacific economies were beginning to recuperate by early 1999. As the economies began to turn around and as exchange rates started to strengthen, the competitiveness of imported Canadian products also began to improve.

While Canadian exports to the region fell by 30% between 1997-1999 and have not yet reached pre-crisis levels, the rate of decline is slowing. By November 1999, major Canadian exports to Asian countries had reached $1.7 billion.

External trade is of critical importance to the Malaysian economy, given the fact that the value of exports is in excess of 80% of the country gross national product (GNP). The Asian financial crisis therefore had a major effect on the Malaysian external trade and the economy as a whole: between July 1997 and January 1998, Malaysia's currency, the *ringgit* (RM), lost approximately 40% of its value against the U.S. dollar. In 1998, Malaysia's GDP growth rate then decreased dramatically by 6.7%, almost reaching its pre-crisis, 13-year annual growth rate of 7.5%.

Malaysia's forest industry, which depends largely on the Asian market for its log exports, also experienced a slowdown due to the Asian financial crisis with lower production. Production of all the four major timber products (namely logs, lumber, plywood and veneer) suffered significant declines in 1998, mainly due to weak demand from east and southeast Asian regions. The production of logs declined sharply by 31% from 1997 to 1998, reaching only 5.1 million cubic metres in 1998. The primary processing wood-based industries were also badly hit by the crisis, with growth rates slowing in most areas of production: sawn timber (down 32.5%), plywood (down 34.3%), veneer (down 50.7%), moulding (down 9.2%) and blockboard (down 70.7%). Only the export of secondary wood products, such as chipboard and particleboard and wooden furniture, among a few others, had recorded double-digit growth of between 30.2% and 94% during this time.

The decline in consumption and export demand also led to a build-up in stocks and excess capacity. In Sarawak and Sabah, many small sawmills and wood manufacturers had to downsize or temporarily close down. The downsizing provided opportunities for

other surrounding local mills to have access to machinery and factories and other production facilities at a discounted price.

Table 7. Malaysia's Exports of Major Timber Products (1994-1998), Volume ('000 m^3)

	1994	1995	1996	1997	1998
Sawlogs	8 516	7 864	6 987	6 593	5 583
Sawn timber	4 561	4 151	3 660	3 007	2 703
Plywood	4 140	3 626	3 048	2 745	2 556
Veneer	613	586	649	747	731
Moulding	n.a.	n.a.	n.a.	n.a.	n.a.
Dressed Timber	125	114	96	116	118
Woodchips	n.a.	n.a.	n.a.	n.a.	n.a.
Particleboard	35	61	100	122	231
Medium Density Fibreboard	187	251	168	590	730
Builders Carpentry & Joinery	n.a.	n.a.	n.a.	n.a.	n.a.
Wooden Furniture	n.a.	n.a.	n.a.	n.a.	n.a.
Rattan Furniture	n.a.	n.a.	n.a.	n.a.	n.a.
Total:	17 086	16 489	15 928	15 000	13 727

Source: Malaysian Timber Industry Board (MTIB), 1999

Despite the last few year's difficult trading conditions, Malaysia is on the road to recovery. GDP growth was 4.3% in 1999 and is predicted to reach 5% in 2000. Analysts anticipate that Malaysia's timber industry will see more positive outlooks in the next few years as a result of a boost in demand brought about by recovering Asian economies, especially Japan and China. For example, the Japanese housing sector showed year over year growth in April 1999, after 27 months of consecutive decline, thus increasing its demand for wood products from Malaysia. Timber producers in Malaysia are also expected to benefit from China's ongoing logging ban, which has created increases in the demand for timber imports.

The forestry and woodworking equipment market is driven by the international demand for Malaysian wood products. According to the MTIB, demand for forest products has increased and will continue to see positive growths in 2000 and 2001. The slightly longer term outlook indicates even more positive sustainable levels. The more positive longer-term outlook can be attributed to the Malaysian government's efforts to encourage overseas investment and more recently to assist in economic recovery, which has resulted in the manufacturing sector now being the economy's major driving force. The Malaysian government's current target is to transform Malaysia into a fully

industrialized nation by 2020. The Government's emphasis is on the development of higher value-added, export-oriented, manufacturing industries — which includes some wood products — and the development of a dynamic services sector.

In addition, the wood-based sector has been identified by the Malaysian government as one of the eight key industrial groups to be further developed under the most recent industrial master plan because of its growing potential as a major commodity earner. As the government endeavours to put Malaysia's significant forestry resources on a more commercial and sustainable footing, there will be opportunities for Canadian exporters of timber processing technology, equipment, forestry expertise and consultancy services.

Heavy Machinery

For Malaysian loggers, the use of new equipment and technology is often dictated by the market: companies tend to invest in new technology, forestry equipment and services when the economy is healthy and the timber prices are relatively low. According to industry experts, the demand for heavy equipment and machines is expected to grow with the recovering economy. The outlook also appears good for the medium and long term as engineering and infrastructure projects are starting to pick up, while the forestry sector is already enjoying an increase in demand for round logs and better prices. Moreover, with less equipment having been replaced by companies in the previous years, demand for new forestry machines should be forthcoming as the economic recovery sets.

Environmental Concerns

For many years, indiscriminate logging practices in Malaysia created serious environmental concerns. Such practices have led to serious soil erosion and caused havoc in river systems, with as much as 60 million tonnes of soil being poured into rivers annually. In an effort to move toward environmentally sound forestry practices, timber companies in Malaysia are required to prepare environmental impact assessment reports before carrying out logging activities. Malaysian timber companies are therefore continuously looking at finding operational solutions to minimize sedimentation and soil erosion.

Environmental Improvement in the Wood Processing Industry

The wood processing industry in Malaysia has to meet the local legislative requirements and has to satisfy consumers' growing demands for products that are both environmentally friendly and made with eco-friendly operations. Because of this, in the very near future, Malaysia will make environmental regulations and requirements concerning the wood processing industry even tighter. To remain economically viable, the industry is therefore encourage to adopt environmentally sound practices as part of

their business as well as operation planning. The Forest Research Institute of Malaysia (FRIM) has developed good practices guidelines for the wood processing industries, addressing, for example:

- control of exposure to dust in the wood processing industry;
- safety and health in the wood processing industry;
- reduction of exposure to noise in the wood processing industry; and
- management of wood waste in the wood processing industry.

It is clear that the larger Malaysian forestry companies have the resources and the motivation to project an environmentally responsible image, which, together with responding to legislation, prompts them to invest significantly in new environmental goods and services. Small and medium-sized enterprises (SMEs), however, have been slower to react to environmental legislation. As enforcement of regulations increases, SME purchases of environmental equipment and services will also increase. These companies represent a growing market for Canadian producers of low-cost, small-scale, efficient forestry products and technologies.

In short, there is a clear acknowledgment that the local wood-based industries in Malaysia have to improve on their processing efficiency and productivity, as well as upgrade the recovery rate of raw materials, to reduce wastage. Unfortunately, the concept of zero waste management — to achieve full utilization of timber and other resources — has not yet been implanted nor practised by the mills in Malaysia. Although many Malaysian timber processors are still slow to invest in the latest technology available to improve product yield, Canadian companies will find that the best market opportunities lie in environmentally friendly forestry equipments and processes.

Malaysia's Challenges in the Investment of New Forestry Equipment

Despite the increase in export earnings over the years, the Malaysian timber sector faces major challenges: shortages of logs, capital, and skilled workers; quality control; and pressure from trading partners.

Log Shortage

Most of Malaysia's timber regions have long been harvesting at, or above their sustained yield limit. Timber supply from the clearing of the conversion[4] forests in those regions is scheduled to decline to about one-third of its current level by 2010.

In order to ensure the supply of raw material to its own companies, Malaysia has implemented a ban on the export of logs from the Malaysian Peninsula and Sabah, and has progressively been reducing log production in Sarawak.

Several timber mills in Malaysia are facing raw material shortages due to a decline in local log production and a reduction in new forest areas identified for harvesting. More rigorous and strict adherence to annual log cuts and curbs on illegal logging have also contributed to shortages. The expected drop in log output will consequently have a negative impact on the production and output of lumber, plywood and veneer in the near term.

The timber industry will have to continue to re-structure itself in order to adapt to the reduced availability of the raw material. Malaysia industry experts predict that a decline in log supply from the current production rate of 35 million cubic metres per year to 25 million cubic metres by 2005.

Shortage of Capital

Historically, much of the Sabah and Sarawak's industry development relied on state support and assistance, and while major private-sector wood companies are starting to emerge, they generally rely on internally generated funds for expansion. Many banks have been reluctant to invest in new mills for fear of being implicated in possible environmental damage.

Hence, the inability of SMEs to obtain financing for equipment purchases has limited the growth and development of the logging industry. Canadian companies capable of offering forestry equipment and services and that can provide economic incentives sufficient to encourage loggers to adopt new products or technologies will therefore have more success with Malaysian importers.

Shortage of Skilled Workers

New machinery or operating logging methods inevitably requires the need for trained and skilled workers. Although Malaysia has admitted to having some shortages of skilled workers, this is currently being addressed by specific government initiatives.

[4] Conversion of primary forests to secondary or managed forests

Quality Control

Quality control has been a major problem in some Malaysian wood-processing plants, such as the furniture industry. The Malaysian government recognized the clear benefits in improving the quality of Malaysian products and attaining specific quality assurance standards, such as ISO certification. However, it seems that companies are reticent to authorize this expenditure until the economic climate in Malaysia improves and stabilizes.

Pressures from trading partners

To date, Malaysia and other Asian countries have tended to ignore environmental issues. However, pressure from lobbyist and non-governmental groups, such as Greenpeace and WWF, as well as from Western consumers and shareholders has led to the implementation of higher environmental standards in developed countries, and Malaysia producers will be forced to follow suit in order to access world markets.

Forest Managemer.t and Forest Reserves

Malaysia has adopted a stringent forest management practice that is aimed at sustaining the natural growth to ensure a continuous supply of the resource.

The main objectives of the forest and timber industry sector in Malaysia are to:

- manage the forest resources on a sustainable basis for the continuous supply of forest products and their optimum utilization;
- strengthen research and development so as to achieve the necessary technological innovation with spin-offs in investment for the forestry and related sectors;
- enhance higher-value, downstream activities for the forestry sector;
- consolidate, strengthen and expand markets for forest products and services;
- develop trained human resources to support the forestry sector;
- conserve and protect the biological diversity of the forest;
- improve public awareness regarding the multiple roles of the forest through education and dissemination of information; and
- establish Malaysia as the information hub in tropical forestry, in terms of research, management, training, technological innovation and trade.

Forest Reserves

Malaysian forests are managed for both their economic utilization and for protection of the environment, which takes into account the need to maintain the stability and balance of the environment, ecology and eco-system. The cornerstone of Malaysia's forestry management policy has been the establishment of Permanent Forest Estate to ensure sustainable forest management. These estates cover 14.19 million hectares or 43.2% of Malaysia's total land area, of which 10.53 million hectares are considered production forests and the remaining 3.66 million hectares are protection forests (the status of the PFE is summarized in Table 8). Hence, the total area of natural forest under perpetual management amounts to some 16 million hectares.

Table 8. Permanent Forest Estate in Malaysia, 1997 (million hectares)

Region	Protection Forest	Production Forest	Total Land Area Under PFE	Percentage of Total Land Area
Peninsular Malaysia	1.90	2.83	4.73	35.6
Sabah	0.59	3.01	3.60	48.8
Sarawak	1.00	5.00	6.00	48.7
Malaysia	3.49	10.84	14.33	43.5

Source: U.S. Department of Agriculture, http://www.fs.fed.us, 2000

Where forests are for production, there are prescribed plans of forest harvesting. Under such plans, logging on a rotational cycle is permitted in the production forest of the PFE where mature and fully grown trees are harvested at a rate of between 7 and 12 trees per hectare. The current coupe (annual felling rate) for PFE is based on resource availability and on the basis that the forest is managed as a renewable resource. To ensure that the forest is better conserved, the annual coupe was scaled down by 17% between the 6th (1991-1995) and 7th (1996-2000) Malaysia Plan. Thus, the annual log production from the forests in Malaysia for the 7th Malaysia Plan is estimated to be around 28.3 million cubic metres (or 45 000 hectares) — comprising 7.4 million cubic metres for Peninsular Malaysia, 5.4 million cubic metres sor Sabah, and 15.5 million cubic metres for Sarawak — compared to the 34 million cubic metres (or 52 250 hectares) logged during the 6th Malaysia Plan. For the next few years, the supply of logs is expected to be even further reduced to a sustainable level of around 18 million cubic metres per year.

Promotion of improved production processes

According to the Malaysian Industrial Development Authority (MIDA), the Malaysian government is promoting the automation and modernization of various existing manufacturing plants through the upgrading of production facilities.

The Malaysian government's second industrial master plan (IMP2,1996-2000) clearly identifies the importance of the wood-based sector, but also indicates that forests must be managed sustainably if the industry is to survive. The Plan also calls for more automation and computerized production processes in various industries, including the forestry industry. The plan states that the machinery and equipment industry remains "backward" since it lacks integration and is supported by weak and fragmented sub-sectors. Although most of the larger forestry and agricultural companies in Malaysia are more or less automated, others are not — mainly those SMEs utilizing low-end technology and inefficient production facilities. To increase automation and computerization among SMEs, the Government is providing support to three wood-based industries: mould and dye-making; tool making; and manufacturers of automation equipment.

Since a large proportion of industry requirements for machinery and equipment in Malaysia is currently met by imports, the IMP2 is pushing for the local manufacture of machinery, tooling and materials handling equipment that incorporates automation, production machine accessories, parts, and testing and measuring equipment. Emphasis will also be placed on the refurbishment and maintenance of other types of machine and equipment to support the various needs. Despite the availability of incentives to encourage the usage and the local manufacture of advanced machinery and equipment, participation from the private sector has not been forthcoming. This can only open more opportunities for Canadian exporters of forestry machinery and equipment.

Shortage of Local Equipment Supplies

It is clear that the Malaysian government acknowledges the need for improved technology in manufacturing if the sector is to remain strong and to continue to record growth. During the September 1999 Malaysian International Woodworking, Timber Processing and Furniture Manufacturing Supplies Exhibition and Conference, the primary industry minister, Dr. Lim Keng Yaik, openly asked foreign machinery manufacturers to set up operations in Malaysia, stating that the country is a major timber and wood-based product producer and the demand for such machinery is huge.

The Government of Malaysia clearly acknowledges the fact that the local wood-based industry must not be too dependent on imported machinery and that there is a need to speed up the development of its local industry. Since the equipment used in production for the purpose of feeding, stacking and loading are mostly bulky and costly to import, the Government is actively encouraging the development of locally made machinery through joint ventures and technology transfer. The Government has therefore invited foreign companies to set up joint-ventures with Malaysian companies.

Despite Malaysian government initiatives to build up domestic manufacturing capabilities, ample opportunity exists for Canadian exporters in the Malaysian forest

equipment market, especially in the short- and medium-term. Promising subsectors include wood-working equipment, feller bunchers and harvester machines.

OPPORTUNITIES

Harvesting and Logging Methods

Foresters and conservationists have long pointed out that a major cause of collateral destruction in logged forests in Malaysia is the manner in which trees are harvested. Felling by chain saw and skidding to landings by tractor is the standard harvesting technique in Malaysia. This method, commonly refereed to as "crawler-tractor winch-lorry combination" method has been in use since the 1960s. These methods were adapted from harvesting lowland forests where the terrain is less difficult. Today, with the hill forests however, rugged terrain and weather conditions affect site impact. Such techniques unfortunately encroaches onto fragile mountain slopes, brings destruction to surrounding pristine forests, exposes soil to erosion and can damage up to 80% of an area. Industry experts confirm that by lifting up the log instead of using bulldozers to skid it, loggers would reduce damage to the forest.

FRIM acknowledges that the extent of the damage in Malaysia's forests is alarming and is encouraging Malaysian timber companies to use reduced-impact logging methods. Other "greener" alternatives to the ground-skidding technique are now being undertaken, including the feller-buncher-forwarders and the long-haulage method. These methods tend to appeal to loggers because they only require minor changes to existing machinery, are simple to learn, and need only a minimal investment from the companies. Although the environmental benefits of these reduced-impact logging methods are clear, the search for an ideal logging method remains elusive for Malaysia.

Some high-lead and grapple yarder operations are still functioning but with the practice of selective logging, this method is dying out.

Another example is the use of helicopters — the skyline method — instead of using tractors to lift trees out in hill forests located in remote and difficult terrain regions. Commercial helicopter logging has been carried out for many years in the Pacific forests of Canada and Northwest United States, as well as elsewhere, but only recently has it been attempted in tropical forests. Parts of the Deramakot Forest Reserve in Sabah are currently harvested with the skyline method. Sarawakian loggers, who profess to be ahead of Peninsular loggers where technology is concerned, have also adapted the skyline method, but only in some limited areas. Although it is being promoted by government agencies, most of them have stopped using this logging method because it was found to be too costly to operate and maintain or they simply did not have the needed skilled workers to operate the equipment.

Another problem with the current forestry equipment used in many of Malaysian's timber companies is their lack of efficiency, which often needs to be improved. For example, some Malaysian loggers use a long haulage system that can haul 10 one-tonne logs a day — but the loggers are looking at maintaining their daily haulage totals of 20 to 25 logs one-tonne logs a day. Hence, Malaysian companies are looking at acquiring logging equipment and systems that will maximize their scale of operation.

Great prospects therefore exist for Canadian companies capable of offering logging machines or equipment and methods that are efficient, practical, and at the same time, offer the required environment benefits. Canadian companies should note that the most common concerns/questions raised by Malaysian loggers before deciding to invest in new forestry equipment are:

- What are the costs involved?
- How many logs can we cut a day?
- What kind of equipment must we invest in?
- Must our loggers undergo special training?
- Are the methods/equipment designed for temperate forests or are they suited for the harsh conditions of working within lush tropical rainforests?

Reduced-impact Logging Equipment and Methods

Environmentally sound forest harvesting and transport operations are essential components of sustainable forestry in Malaysia. Reduced-impact logging (RIL) is becoming inevitable for Malaysian companies in the end because of the timber certification requirement within the trade: timber and timber products can only be exported if they carry certificates attesting to the fact that they came from sustainable managed forests. Sabah and Sarawak are therefore increasing their research into reduced-impact logging in the tropics.

With the Malaysian market demonstrating an acceptance toward more advanced and less labour-intensive equipment in its operations, the introduction of logging training programs have also increased in recent years.

Despite the fact that governments and forestry associations in Malaysia are increasingly encouraging and promoting the use of RIL methods — attempting to convince companies that RIL methods can help offset costs of adopting environmentally sound technologies — such technologies have not been widely adopted by various timber companies. Malaysian companies — especially SMEs — are generally resistant to change and it can be difficult to convince companies to adopt costly new technologies or logging methods. Moreover, logging operators argue that they cannot find workers and supervisory personnel with the necessary skills to utilize such technologies. Canadian suppliers of simplified forests products and equipment that can be readily understood and applied by less-skilled personnel while retaining most of the benefits

associated with environmentally sound logging systems will find ample opportunities for their products in Malaysia.

As reduced-impact logging is not only about new methods of harvesting and hauling trees, there is also an increasing importance given to the planning activities. For example, various Malaysian states are giving more importance to harvest planning, directional felling and post-harvest environmental mitigation measures that favour RIL. Sabah adopted RIL as standard harvesting practice in 1997. To date, however, only a negligible number of loggers have complied with the system's requirements — partly due to the fact that no one imposes penalties. Because the success of RIL methods largely depends on skilled workers, there is a growing need for training sessions for workers.

Canadian companies capable of offering RIL solutions that are more profitable and cost-efficient than conventional selective logging will find profitable opportunities in Malaysia.

Sawmill Operations and Equipment

The strong international demand for tropical products, coupled with the availability of high-quality logs at the relatively low prices, led to increased investment in several of Malaysia's timber processing mills. In 1998, Malaysia was reported to have 1172 sawmills, 180 plywood/veneer mills, 344 moulding plants, 11 chip mills, and about 3000 furniture plants distributed throughout Peninsular Malaysia, Sabah and Sarawak.

With the existing total annual installed processing mill capacity of 13.20 million cubic metres in Peninsular Malaysia, 7.45 million cubic metres in Sabah, and 6 million cubic metres in Sarawak, most companies are moving toward larger facilities to better compete in foreign markets. Malaysia's older generation of mills, including mid-size and larger mills, did not target fibre optimization. The availability of low-cost labour contributed to extensive manual operation instead of mechanized recovery systems, which would result in improved fibre recovery.

It is anticipated that many wood processing mills, particularly those involved with primary processing, will restructure and modernize their technology to be able to export high-quality products and at the same time improve their waste recovery. New equipment — especially those targeting greater fibre utilization — are being added to existing sawmills and new modernized mills are being built, representing great opportunities for Canadian exporters of such products.

The following table summarizes Malaysia's wood processing mills.

Table 9. Types of Processing Mills in Malaysia, 1992-1998

Type of Mills	1992	1993	1994	1995	1996	1997	1998
Sawmill	1151	1115	1145	1163	1249	1194	1172
Plywood/Veneer	109	131	114	160	168	176	180
Moulding	168	205	262	284	324	344	344
Particleboard/Chipboard	2	2	5	6	15	11	11
Pulp and paper	1	1	1	1	1	1	1
Furniture & Other	> 2000	> 2300	> 2300	> 2600	> 2960	> 2620	> 2947
Blockboard	13	13	13	13	12	12	12
Laminated board	29	21	39	44	41	41	41
Wood cement board	11	2	2	3	4	6	6
Wood chips & Chip mills	2	2	2	3	9	9	9
Parquet & Flooring	25	25	25	27	27	27	27
Prefabricated housing	10	10	10	11	10	10	10
Matches	5	5	5	7	7	5	5
Pencils	2	3	2	3	3	3	3
Kiln drying	120	120	120	130	207	212	258
Timber treatment	117	117	117	137	176	182	178
Medium density	2	2	5	5	7	9	10

Source: Sarawak – STIDC; Sabah and Peninsular Malaysia Forestry Department, 1999

Canadian companies have been criticized for their lack of after-sales service. Malaysian sawmill operators demand that suppliers offer technical support, preferably through someone they already know. Foreign suppliers already solidly entrenched in this sector maintain an active local presence and offer good technical support, often including regular facility visits, rather than appearing only when equipment breaks down.

Canadian companies will find that great sales prospects exist within the following areas:

- sawing equipment, especially for palm and rubber wood, which are plentiful throughout the region and requires expertise in small log sawing (i.e. curved sawing);
- automated production management systems; and
- wood preservation and anti-stain chemical treatments.

Artificial Drying

Rubberwood drying requires a continuous amount of heat but many small and medium-sized wood companies in Malaysia are still using old, inefficient and polluting boilers. Recently, the Malaysian environment department decided to warn, fine and even close any mill that does not comply with the Government's environmental regulations. Efficient, non-polluting combustion technologies that have been developed in other countries (including in Europe) are slowly being used by Malaysian companies. However, in several firms, timber preservation and drying kiln technology still lags behind. With the expected increases in drying capacity required to process wood from logs not being exported and to dry rubber wood, the demand for new kilns is therefore increasing in Malaysia.

Peninsular Malaysia has an extensive kiln drying and secondary processing industry that manufactures mouldings and furniture parts.

Wood Products and Wood Processing

Plywood

Malaysia's plywood sector is the largest contributor to export earnings among the wood-based industries. Malaysia has increased plywood production throughout the last decade and exceeded Japan's production for the first time in 1995.

At present, most mills are designed for processing large logs, which historically were abundant but are becoming increasingly difficult to source. Today, Malaysian mills are being retrofitted to accommodate logs smaller than traditionally logged, and to accommodate environmentally sound practices including the use of adhesives containing no or low levels of formaldehyde.

The average plywood mill in Malaysia operates three-four lines. However, Samling Group of Companies, a Sarawak-based company, is among the largest plywood manufacturers in Malaysia and has 12 lines. Samling currently has two plywood plants, which were opened in 1990 and 1994, and a sawmill that opened in 1994.

In order to stay competitive, Malaysian companies will have to continue to invest in new technologies and to-of-the-line woodworking equipments.

Wood Panelling, Moulding, Joinery and Particleboard

With the rapid development of downstream activities, earnings from wood panel, particleboard and furniture exports have far surpassed earnings from log and lumber exports. Each year, approximately $2 billion worth of locally made wood products are consumed domestically, while another $6 billion worth of such products are exported

worldwide. The Malaysian government has emphasized the need to promote further processing of tropical timber products. The IMP2 has outlined strategies for the further development of the resource-based industries, focussing on greater secondary and tertiary processing activities, producing more products with high value-added such as furniture, builder's carpentry/joinery products and MDF for export.

Example of recent developments — where some Malaysian manufacturers have invested in the technology to produce products such as profile-wrapped and finger-jointed mouldings, MDF mouldings, engineered wood doors and particleboards — are encouraging signs that the Malaysian industry is moving toward the adoption of more advanced technology and production systems. While there are no plans to further expand the forest industry of Sabah, several projects are planned in Sarawak. One of them represents the state's first MDF mill will be built by a Japanese joint venture with the Sarawak Timber Development Corporation and other local investors. There are currently seven MDF and four particleboard manufacturers in Malaysia.

Canadian research and development consultants may note that research is also being carried in Malaysia for alternate ways of utilizing the palm oil tree for higher value products such as in MDF, oriented strand board (OSB) and particleboard. Palm oil logs, along with their empty fruit bunches are presently being utilized in the manufacture of particleboard.

The engineered wood panel sector is relatively new but is growing very rapidly in Malaysia, providing opportunities to newcomers who can develop relationships with the forest industry and demonstrate knowledge of the market and market opportunities. Canadian companies have a strong reputation in supplying expertise to the engineered wood panel sector and have the ability to provide services to a turnkey equipment package.

Furniture

The manufacture of wooden furniture and parts is especially encouraged, with the objective of making the country a reputable centre for furniture production. The furniture industry represents the wood sub-sector with the most dramatic growth rates: in the last five years, the industry recorded an impressive 30% annual growth in exports. Although Malaysia's share of the wooden furniture exports currently is only about 2% of the global furniture market, demand for Malaysian-made furniture is expected to continue to increase.

There are currently 2900 furniture and furniture parts manufacturers in Malaysia. The use of Heaveawood (rubberwood) has proven to be very successful as the international markets respond positively to the high quality, durability, beauty and versatility of this environment-friendly, sustainable wood. Heveawood furniture currently constitutes a major portion of Malaysia's furniture exports.

Malaysian furniture manufacturers invest a great amount in research and development each year. Companies have recently incorporated more automated technology such as radio frequency/ultra violet curing in the finishing line. The industry is looking to further improve its processing efficiency and productivity, mainly through the use of high technology and latest production technology. More emphasis will be placed on improved finishing technologies, advanced drying and curing equipment and the use of specialty finishes. Canadian companies capable of offering these products/technologies will find ample opportunities to sell their products in Malaysia.

Pulp and Paper Processing

Somewhat surprisingly, given the country's plentiful forest resources, the Malaysian pulp and paper industry has been extremely slow to develop when compared to some of its neighbouring Asian countries. Although there are currently 18 paper mills scattered throughout Peninsular and East Malaysia (most of them are relatively small in size and capacity), there is only one pulp mill in Malaysia: Sabah Forest Industries (SFI). The Government-owned SFI commenced production in 1987 but, while integrated mills have prospered in other south-east Asian countries, it remains the only one in Malaysia. Sabah can produce pulp from mixed tropical hardwood species, and all of it goes toward its own manufacture of writing and printing paper. The majority of other paper mills use 95% wastepaper as their main raw material. All other pulp is imported.

Of the country's 18 paper mills, eight have capacities of less than 10 000 tonnes per year, while only two produce in excess of 100 000 tonnes per year. One of the key reasons for this lack of expansion is that most production is carried out in small units, and producers have been unable to take advantage of the economies of scale that pertain elsewhere.

Against this background and recognizing the growing demand within Malaysia for paper products, as well as the potential value for exports of pulp and paper overseas, the Malaysian government has made a concerted effort to generate investment in, and develop, six new pulp and paper mills in the country. Malaysia, and in particular East Malaysia, is ideal for the manufacture of pulp, namely because its climate is conducive to the rapid growth and sustainability of ideal pulp-producing trees, such as acacia mangium and eucalyptus. It should be noted that some mill projects have yet to be materialized.

Similarly, under the Government's initiative to develop the pulp and paper sector, led by the Government's primary industries department, two mega projects have already begun. The first is a joint venture between Borneo Pulp and Paper, a subsidiary of Asia Pulp & Paper and one of the world's largest producers of pulp and paper, and the Government-owned Sarawak Timber Industry Development Corporation. The other mega project is a spin-off from the huge Bakun hydroelectric dam project, where shelled trees from the clearing of the reservoir area in Sarawak will be used as raw

material for the pulp, and involves Malaysia's PWE Industries Bhd and Indonesia's RGM Group of Companies.

There is very little domestic production of pulp and paper equipment. Most companies therefore rely on imports for their machines and equipment. The most important factors in their purchasing decisions are quality, cost, and after-sales service including spare parts. However, to reduce dependence on imports of pulp and paper machinery and spare parts, some existing pulp and paper mills have set up workshops to produce spare parts.

In the production of paper, many of the smaller paper converting companies in Malaysia utilize machines that are geared to handle sheets of paper rather than the rolls that Canadian firms traditionally deal in.

Finally, the government has also undertaken an initiative to research and develop the use of oil palms in the production of pulp, and — ultimately — palm-pulp produced paper products. As a leading producer of palm oil, Malaysia is looking for an alternative use (and revenue source) for its ubiquitous palm plantations.

Forest Management and Services

Researchers, government officials and industry analysts continue to stress the critical role of sustainable forest management and this represents the best opportunities for Canadian firms seeking markets in that country.

More specifically, the main fields of interest to Canadian suppliers of forest services are silviculture and reduced-impact harvesting system; forest management; process control; and wood processing equipment.

Silviculture and Reduced-impact Harvesting System

The present system of timber harvesting is quite damaging to the residual vegetation and the environment. Malaysia is therefore actively trying to develop cost-effective but appropriate plantation management and logging systems that would cause minimal damage to residual trees, seedling regeneration, and the forest environment.

Canadian companies have an opportunity to export their services in the area of harvesting planning, plantation expansion and newer harvesting methods for specialized logging.

There are also growing opportunities for Canadian consulting companies in Malaysia to supply silviculture and reforestation expertise. Use of silvicultural treatments within natural forest management is mainly to improve the growth and survival of commercial species as well as to ensure an adequate stock of trees for harvest. Silvicultural

methods in Malaysia vary according to the management objectives and local environmental conditions. Current opportunities exist for Canadian companies to assist Malaysian companies that are planning large timber concessions of *Pinus* species timber or fast-growing species for pulp or OSB.

Canadian companies should note that Malaysians tend to refrain from using chemicals in silvicultural treatments. Malaysia has specifications for enrichment planting, cutting lianas, and girdling of undesirable species.

Forestry Management

Sustainable forest management is vital to Malaysia's prosperity and to the continued success of the country's timber and wood-processing industries. Although the Government of Malaysia has taken important steps to adopt a system of sustainable forest management for commercial forest production across all states, research and development efforts specifically on the tropical ecosystem in Malaysia need to be further intensified to assist the country achieve its development goals.

Malaysia is also placing a growing emphasis on improving the management, production and logistics efficiency in the forestry industry such as the shift to more precision machinery to reduce waste and promoting just-in-time manufacturing and inventory policies together with the use of the latest information technology in e-commerce. The use of IT in some applications has already proven to be an efficient way of increasing the efficiency of forest management and the productivity of the timber industry in Malaysia. For example, FRIM has recently developed *Semsat*, a system to analyse forest inventory which easily collects data of pre-felling and tree marking in a relatively short time.

Process Control

There is a growing need for Malaysian companies to adapt technologies and acquires services that can improve the management and control of their forest as well as their production methods.

On the forestry services side, Canadians will find that most of the opportunities remain in the area of process control systems, energy savings, production efficiency, product quality, waste reduction, and pollution abatement. With the increasing cost of timber harvesting, there is a growing need in Malaysia to acquire services to build infrastructure enabling timber extraction to be done faster and in a more efficient and environmentally friendly manner. Process design is also in demand within Malaysian plywood/sawmills. Canadian consulting engineering firms are leaders in designing automated systems and could find great opportunities in Malaysia.

Canadian companies will also find that the best future prospects for services contracts are the ones that are in line with *IRPA's Priority Areas for R&D in Forestry and Forest Products under the 8th Malaysia Plan (2001-2005)* (see Appendix A).

Wood Processing Equipment

The level of top-of-the-line forestry machinery, equipment and industrial automation in Malaysian manufacturing companies — especially in SMEs — is low. Malaysia requires more automated equipment to reduce the labour content in existing mills.

According to a Bank Negara (the national bank of Malaysia) study, only 29% of small-medium industries (SMIs) have automated their production processes. For many of these, the automation level is only in the form of materials handling, forklift, assembly line and conveyors. There would seem to be plenty of opportunity for Canadian companies to promote their woodworking machinery and equipment products in this arena. However, many SMIs have stated that the lack of progress toward newer and more advanced equipment relates to a collateral problem and the poor lending attitude of local banks; these two problems are unlikely to be overcome in the short term. In fact, during the current economic downturn, banks are making it even more difficult to obtain loans.

Lack of R&D in the overall manufacturing sector and indigenous product development has stalled the designing and development of production machinery. For example, in the wood-based furniture sector, a large proportion of the existing equipment used is old and designed to process large diameter logs from natural forests. Processing smaller diameter logs from forests and plantations necessitates retooling and sometimes re-equipping mills so that they become more efficient and reduce wastage.

The shortage of skilled manpower is among the main factors affecting the industry group as the private sector is not showing a favourable response to domestic machinery and equipment manufacturing although sufficient incentives are available.

Actual and Planned Projects

The Malaysian forestry sector offers interesting opportunities for Canadian producers of forestry equipment & services.

New Pulp and Paper Mills

A forest plantation and a pulp and paper mill is planned to be set up in Kalabakan, Tawau, Sabah State, Malaysia. This $1.8 billion (US$1.2 billion) joint-venture project, signed on August 18, 1999 Chinese and Malaysian partners, will represent great opportunities for Canadian exporters of various pulp and paper equipment and services. The joint- venture partners are: Lion Forest Industries Sdn Bhd (Malaysia),

Innoprise Corp Sdn Bhd (a company belonging to the Sabah Foundation), and China Fuxin Pulp and Paper Industries Co. Ltd. Under the proposal, the Chinese government will hold a 40% stake in the joint-venture company, while the remaining 60% will be held by the Sabah state government and the Lion group. The new mill is expected to produce 500 000 to one million tonnes of pulp every year. Although it is not certain when the construction of the mill will begin, work on the 220 000 ha plantation has already started. The plantation will be planted with the fast-growing acacia mangium trees.

Furniture Industrial Park (FIP)

The Malaysian government provides various forms of incentives and assistance to support manufacturing activities. One of these incentives is the recent establishment of a furniture industrial park (FIP). The main objective of FIP is to develop the small and medium Bumiputera (indigenous Malays) manufacturers.

FIP has been established with common facilities that can be utilized by all the Bumiputera manufacturers, in order to assist them to be more efficient and productive, as well as to produce quality furniture at a competitive price for the export market. The facilities include kiln drying and finishing plants. Presently, there are five furniture industrial parks in Peninsular Malaysia: Temerloh (Pahang), Ulu Yam (Selangor), Mukim Belanja (Perak), Bukit Selambau (Kedah) and Setiu (Terengganu).

In line with the Government of Sarawak's effort to develop the timber industry, the Sarawak Timber Industry Development Corporation (STIDC) is providing the necessary avenues and infrastructure to complement and spur on the growth of the timber industry. One of its major projects toward this end is to set up the state's first fully integrated timber processing complex in Tanjung Manis, Sarikei, where about 20 timber-based mills of various types are actively operating. This timber processing zone will be able to achieve full and efficient utilization of timber. The 3000-ha timber processing zone is expected to be fully operational by the year 2010.

STIDC has also ventured, in 1998, with a large integrated producer of pulp and paper in Asia-Pacific to set up the state's first pulp and paper mill, with an annual production capacity of some one million tonnes of pulp. The State of Sarawak is embarking on large-scale forest plantation development to meet the raw material needs of the wood processing industries, including the pulp and paper industry. The State of Sarawak is expected to invest some $1 billion (RM3 billion) to plant one billion trees over the next 20 years.

Several technology transfer projects have or are being undertaken with international agencies and foreign countries to support the implementation of sustainable forest management. Some of the participating organization or countries include the International Tropical Timber Organization (ITTO), Japan, Germany, Denmark, the

United Kingdom, the European Union and Sweden. To date, Canada is not known to have participated in such recent projects.

COMPETITIVE ENVIRONMENT

Local Capabilities

The majority of forestry equipment, machinery and parts installed in Malaysian mills are imported. There is very little local production of forestry machinery, although most of Malaysia's forest and timber products manufacturers have set up their own workshops to repair and produce spare parts. Furthermore, forestry and timber operators or distributors export a limited amount of machinery, mainly refurbished machinery from their own plants for their foreign expansion and/or investment other Asian countries. Nevertheless, there is a strong infrastructure base of all the world's leading machinery suppliers in Malaysia, with perhaps the strongest being *Tractors Malaysia*, the Caterpillar dealer.

The main agricultural and forestry equipment manufacturers in Malaysia are listed in **Appendix B**.

International Competition

Japanese and Taiwanese suppliers dominate the import market in Malaysia for woodworking machinery and forestry equipment, having approximately a 43% and 35% market share, respectively. Italy (7%), Germany (9%) and the United States (6%) have also been successful in selling forestry equipment in Malaysia. Malaysia's major imports from these countries were sawing machines, dryers for wood and pulp and paper, tractors/grapple skidders, and lifting/loading/handling machinery.

While competition in the sawmill sector comes from Japan, Korea and Taiwan, Japan, Germany, and Sweden have been the primary pulp and paper equipment suppliers in Malaysia. What clearly provided some of these competitors with a distinguishable comparative advantage in Malaysia was their commitment to the marketplace through a local sales effort and a strong commitment to after-the-market sales, service and technical support, along with their close proximity.

In the area of forest management, Malaysia is currently involved in international collaboration projects with agencies and organizations such as Japan International Co-operation Agency, Danish Co-operation for Environment and Development, the European Union, and the German Agency for Technical Co-operation.

Canadian Position

Despite the strong international competition, Canadian companies with the essential expertise, technology, or can fill a niche role can successfully compete in Malaysia.

Canada exported approximately $200,718 worth of forestry[5] and wood equipment[5] to Malaysia in 1999.

Table 10. Canadian Exports of Selected Forestry Equipment to Malaysia, 1996-1999 (C$)

Product	1996	1997	1998	1999
SIC 3193 Sawmill and woodworking machinery industry	679 728	294 431	4 122	n/a
HS 8428.90 Woodland log handling equipment, other than skidders, including log loaders	320 967	53 133	29 801	200 718
HS 8429.52 Excavators, self-propelled bulldozers, graders, levellers, excavators including machinery with a 360-degree revolving superstructure	234 308	193 977	0	0
HS 8432.30 Forestry machinery for soil preparation or cultivation including seeders, planters and scarifiers	0	0	0	0
HS 8436.99 Agricultural/horticultural machinery	123 132	38 212	0	0
HS 8701.90 Tractors, grapple skidders	339 639	1 934 999	0	0
HS 8439.10 Machinery for making pulp of fibrous cellulosic material	0	10 596	0	0
HS 8465.92 Planing, milling or moulding (by cutting) machines for working wood or other hard materials	203 030	65 812	0	0
HS 8465.91 Sawing machines for working wood, cork, bone, hard rubber, hard plastic or similar hard materials	456 996	143 509	0	0
HS 8465.99 Machine-tools NES for working wood, cork, bone, hard rubber, hard plastic or similar hard materials	0	121 586	0	0
Total	1 678 072	2 561 824	29 801	200 718

Source: TradeStat, 2000

[5] includes HS 8428.90, HS 8429.52, HS 8432.30, HS 8436.99, HS 8701.90, HS 8439.10, HS 8465.92, HS 8465.91, HS 8479.30, HS 8465.96, HS 8465.99, HS 8465.93.

In the past, Canadians have exported consultancy services in forest management and milling operations, including supplying the very first Malaysian integrated pulp and paper plant to Sabah Forest Industries. Malaysians recognize Canada as having the know-how, expertise and technology in wood products and wood processing equipment, but Canada's presence in the Malaysian forestry equipment and services sector lags behind international competitors. A growing list of Canadians active in Malaysia include: Canadian Forestry Equipment Ltd. (Mississauga), Qualitas International Inc. (Calgary), BM & M Partnership (Surrey).

Canadian companies' major weaknesses in the Malaysian market include:

- lack of representation in the market;
- no continuity of presence;
- lack of major re-manufacturing equipment lines; and
- after-sales service is considered poor because no commitment is made to the market.

The Malaysian business community places a high priority on cost effectiveness and technological support. Canadian companies and products that address those selling criteria are very well received.

Additionally, the Government of Malaysia encourages projects that are collaborative between foreign and domestic partners, especially those that which will provide Malaysia with the benefits of long-term technology transfer.

Competitive Advantage through Canadian Government Policies and Initiatives

Export Development Corporation

Export Development Corporation (EDC) offers export financing and insurance to Canadian exporters. Additionally, insurance can be provided for larger transactions that are subject to the terms and conditions established by the buyer. EDC prefers to work through letters of credit, bank credits or bank guarantees. Approval for financing is considered on a case-by-case basis.

Canadian Commercial Corporation

The Canadian Commercial Corporation (CCC) gives Canadian companies access to financing and better payment terms under the Progress Payment Program (PPP). The PPP concept was developed as a partnership between major Canadian financial institutions and the CCC. It enables the exporter's bank to open a project line of credit for the exporter's benefit, based on CCC approval of the project and the exporter's ability to perform. The CCC will also act as a prime contractor on behalf of Canadian

small and medium-sized enterprises, giving those businesses increased credibility and competitive advantage.

Program for Export Market Development

The Program for Export Market Development (PEMD) helps Canadian companies enter new markets by sharing the costs of activities that companies normally could not or would not undertake alone, thereby reducing risks involved in entering a foreign market. Eligible activities include market visits, trade fairs, incoming buyers, product testing for market certification, legal fees for international marketing agreements, transportation costs of offshore company trainees, product demonstration costs, promotional materials, and other costs necessary to execute a market development plan. Activity costs are shared on a pre-approved, 50/50 basis.

The PEMD refundable contribution ranges from $5,000 to a maximum of $50,000. Preference is given to companies with less than 100 employees for a firm in the manufacturing sector and 50 in the service industry, or with annual sales between $250,000 and $10 million. Other components of the program include international bid preparation (Capital Project Bidding) and, for trade associations, developing international marketing activities for their membership. For additional information visit http://www.infoexport.gc.ca/pemd-e.asp or call 1-888-811-1119.

WIN Exports

WIN Exports, a database of Canadian exporters and their capabilities, is used by trade commissioners around the world and by Team Canada Inc partners in Canada to match Canadian suppliers with foreign business leads, and to share information on trade events. To register your company in WIN Exports or for more information, visit http://www.infoexport.gc.ca/winexports/menu-e.asp or call 1-888-811-1119.

PRIVATE-SECTOR CUSTOMERS

Malaysia's timber and wood industry is characterized by a variety of companies, ranging from small sawmills, to large, computer-driven, fully automated facilities. The following are some of Malaysia's largest timber companies.

The **Samling Group of Companies** and its subsidiary, Samling Strategic Corporation Sdn Bhd control around 1.5 million hectares of forests in the state of Sarawak.

The **WTK Group of Companies** is one of Sarawak's oldest timber giants. The Group owns one of the largest timber concession areas in Sarawak. With four sawmills, the company produces air-dried, kiln-dried and chemically treated sawn timber. To date, WTK's mills output a combined monthly production of 10 000 m^3 of high quality MGR

sawn timber. They also own three veneer and plywood mills, which produce a combined monthly output capacity of some 20 000 m^3.

The **Rimbunan Hijau Group of Companies** ("Forever Green") is one of the biggest groups in the Sarawak wood industry. They have five sawmills, three plymills and two laminated board plants. They also produce veneer, particleboard and furniture. As with other large Malaysian logging companies, the wealth and expansion of their operations have been largely based on their technological capacities. Environmental protection being one of their main concerns, they have already invested big sums in their attempts to reduce their fossil fuel consumption through optimizing the use of their wood wastes for energy.

Other potential importers of wood working machinery and equipment include the leading pulp and paper mills of Malaysia. As indicated earlier, the largest and most successful pulp mill in Malaysia is Sabah Forest Industries, which has the only integrated pulp mill in the country (at Sipitang) and specializes in the production of coated and uncoated wood-free paper. Other leading paper mills in Malaysia include:

- Genting Sanyen (packaging paper and board);
- Kajang Paper (packaging paper and board);
- North Malaya Paper Mills (packaging paper and board, printings/writings);
- Pascorp Paper (packaging paper and board); and
- Scott Paper (tissue paper).

PUBLIC-SECTOR CUSTOMERS

Government Organizations

Malaysian Timber Council

The Malaysian Timber Council (MTC) represents the private sector but reports to the Malaysian Federal Ministry of Primary Industries and regulates the timber operations in Peninsular Malaysia. The MTC also assists in training and upgrading of the timber industries, including some reforestation. For the most part, however, reforestation is carried out by the private sector.

National Forestry Council

In accordance with the federal constitution of Malaysia, forestry is a State matter and therefore state governments have complete jurisdiction over their respective forest resources. The federal government provides technical advice on forest management and development, undertakes research and education, and promotes industrial development of wood-based industries and trade. The National Forestry Council (NFC)

facilitates the adoption of a co-ordinated and common approach to forestry that includes planned, rational and effective management and utilization of the forest resources, consistent with the need to maintain the forest as a long-term renewable resource.

Forest Research Institute of Malaysia

In forest management, Malaysia has set up the institutional arrangement for the administration of forest management policies. In this connection, Malaysia allocates large sums of money in managing the forest as well as in carrying our research and development for the forestry and timber sector. The Forest Research Institute of Malaysia (FRIM) is recognized as the leading research institute on tropical forestry in Malaysia. Many of FRIM's laboratories and experimental plants are equipped with commercial-size equipment and machines, some of which are not available elsewhere in Malaysia. These facilities are accessible to the Malaysian wood users and entrepreneurs via various means, such as joint research, demonstrations, training and production trial runs. Canadian exporters with innovative products and services can therefore have great potential selling to these specific Malaysian organizations.

Government Procurement Regulations

Malaysian government agencies are responsible for the procurement of infrastructure equipment for power, water, irrigation and transport development. These purchases are often arranged with foreign suppliers in response to international tendering. Successful project bidding requires close contact with the Malaysian government departments and the international agencies responsible for project planning and implementation. Canadian companies should choose a Malaysian representative or associate in advance of a tender call, to allow their involvement at the earliest possible stage. Only companies willing to invest a significant amount of time in the Malaysian market are advised to seek out projects.

The Ministry of Agriculture is responsible for the policies and programs applicable to the forestry sector.

Procurement by Malaysian government agencies may be financed internally through Malaysian government institutions or through international financial institutions such as the Asian Development Bank (ADB) or the World Bank. Procurement procedures vary with the government department, lending country and international agency.

Key factors determining award of contracts

Malaysian government policy calls for procurement to be used to support national objectives such as encouraging greater participation of ethnic Malays or *bumiputra* in

the economy, transfer of technology to local industries and creating opportunities for local companies in the services sector. As a result, contracts of less than $2 million (RM5 million) are restricted to Malaysians. When eligible, foreign firms must bid with local partners on all contracts; joint-venture bids must have at least 30% *bumiputra* participation.

MARKET LOGISTICS

Channels of Distribution

Distributors and Wholesalers

The best way for Canadian companies to gain access to the Malaysian market is to work with a Malaysian partner. A reputable Malaysian partner will be well-versed with local regulations and will be in regular contact with the central government and local authorities.

In Malaysia, approximately 80% of sales of forestry equipment and machinery are made through a major local woodworking machinery distributor (See **Appendix C** for a list of distributors).

Each distributor is the sole agent in the country for a particular overseas forestry machinery manufacturer. These distributors also service their client's equipment. Malaysian distributors will not represent the same product line from the same geographic area or country, but they will represent the same product line from different countries. This is due to the varying impression of quality that Malaysians hold of different sources.

Canadian companies considering marketing several products in Malaysia are encouraged to set up a company in Malaysia. For some automated forestry products, it is usually very beneficial if Canadian companies can set up training seminars to educate the manufacturing sector about their machinery.

Agents and Sales Representatives

It has been common practice for Canadian forestry products companies operating in Malaysia to establish a relationship with a local agent/distributor. A good local representative will usually arrange meetings, ensure compliance with local business practices, and act as a facilitator. Many exporters designate an existing Malaysia-based trading company as their local sales agent, who is responsible for handling customs clearance of imported goods, dealing with established wholesalers and/or retailers, marketing the product directly to major corporations or the government, and handling after-sales service. In other cases, some exporters have found it advantageous to

establish their own subsidiary company in Malaysia to directly handle sales, distribution, and service.

All sole agents or distributors must be either firms established in Malaysia or individual Malaysians. Preference must be given to *bumiputra* when appointing agents or distributors. By policy, agents/distributors registered overseas will not be permitted to be sole agents/distributors of goods imported into Malaysia.

It is also recommended that Canadian companies participate in Malaysian trade fairs as testing grounds for their products. At the recent International Machinery Fair in Malaysia, the majority of foreign companies promoting machinery and equipment products had no Malaysian base of operations.

Market-entry Considerations

To successfully penetrate the Malaysian market, Canadian companies should take into consideration the aggressive marketing techniques needed. In addition, some of the influencing factors in selling forestry machinery and equipment to Malaysia are: provision of soft loan or suppliers' credit, selling price, technical assistance, availability of spare parts, quality, warranty and after-sales service.

Strategic Alliances

Canadian companies should be aware that forging partnerships or developing strategic alliances with Malaysian companies is often the key to entering the market if a long-term commitment is the objective.

The Malaysian Government encourages and welcomes any form of partnership — including joint ventures and technology transfers — in the timber industry to enhance domestic capabilities. Moreover, because of the increased costs of imports, the government has indicated that it is very important for new forestry machinery and equipment products to be manufactured locally, with a Malaysian partner.

Suggested Business Practices

Doing business in Malaysia requires commitment to a long-term effort. Business is often conducted on the basis of strong personal relationships or rapport. Regular contact and familiarity are indispensable when equipment or services are contracted, and clients must be assured that the supplier is committed to after-sales service and parts supply.

The Malaysians are familiar with foreign trade and are accustomed to Western business practices. Nonetheless, the country is predominantly Muslim and follows those cultural traditions. Malaysian tend to be reserved in their initial meeting with foreigners and will not generally offer information or enter into in-depth discussions. Compared

with Westerners, Malaysians adopt a much more consensual approach in group dynamics.

Frankness, openness, and promptness are all valued traits in business negotiations and dealings. Canadians visiting Malaysia should be aware of some religious and cultural sensitivities; for example, Malay Muslims may feel uncomfortable in business/social functions where alcohol is served. Many businesses and government agencies have working hours for a half-day on Saturday mornings.

Import Regulations

Tariffs

The level of tariff protection is generally lower on raw materials and increases for those goods with value-added content or which undergo further processing.

In October 1996, Malaysia raised tariffs on a number of construction equipment items (e.g tractors, excavators, backhoe loaders) from between 5% and 20%. The reason behind this increase in tariffs was to encourage Malaysian companies to recondition and repair their existing equipment, thereby reducing demand for imports. This policy can represent a significant barrier to Canadian exports.

The 1998 Malaysian budget introduced new import licence requirements for a number of capital goods, including heavy machinery in the construction sector. The import of all heavy machinery requires mandatory approval by the Minister of International Trade and Industry. Canadian companies should be aware that an import licence will only be given for machinery that are not available locally. Moreover, import licences are required for electrical machinery and electrical apparatus operating at 50 volts AC or 120 volts DC and above.

Local Standards, Certificates or Registrations

Standards

The Ministry of International Trade and Industry is primarily responsible, within the Government of Malaysia, for the formulation and implementation of trade regulations and policies.

Malaysian Timber Industry Board (MTIB) was appointed as the Standards Writing Organization (SWO) on May 25, 1999. MTIB, along with the Industrial Research Institute of Malaysia (SIRIM) are responsible for establishing standards on sawn timber, sawlogs and semi-manufactures of timber; wood-based panels; moulding, joinery and wood-based furniture; timber and timber products; and usage of timber and timber

products including grading, nomenclature, technology and processes. Currently there are approximately 44 Malaysian standards related to timber products.

Some restrictions exist on business practices. Consulting firms and equipment suppliers must be registered and licensed by the Department of Environment. Foreign consultants in a joint venture with a Malaysian firm can operate under the local firm's licence.

Malaysia operates mainly on the metric system. Although there are no laws that require equipment to have metric specifications, it does cause unnecessary inconvenience for Malaysian companies if their equipment uses the imperial system; some American companies have had this problem in the past.

Regulatory Agencies

Companies intending to do business in Malaysia must register with the Ministry of Trade and Industry's Registrar of Companies.

The Malaysian Industrial Development Authority has the responsibility for the promotion and co-ordination of foreign investment.

The Foreign Investment Committee regulates mergers and acquisitions to ensure their adherence to Malaysia's economic policy. It also co-ordinates Malaysia's foreign investment policy.

The Ministry of Labour's Factories and Machinery Department approves manufacturing operations.

The Ministry of Science, Technology, and Environment ensures that companies adhere to Malaysia's environmental quality regulations.

Export Credit Risks, Restrictions on Letters of Credit, Currency Controls

The purchase of forestry machinery requires a large investment, so adequate financing from banks is imperative. Finance is readily available on the domestic market to Malaysian importers. Import payments to overseas exporters are usually in the form of letters of credit, sight draft and term drafts. Credit terms may vary, but are generally offered on a 30-, 60- or 90-day basis. Goods should not be shipped prior to receipt/evidence of payment. Exporters can also ask for other forms of payment, such as sales against cash deposits in advance, sales on open account, or sales on a consignment basis.

There are no foreign exchange controls which would impede trade. Since currency controls were put in place in September 1998, payment to exporters are required to be

in a foreign currency and not in *Ringgit*. In addition, exporters to Malaysia should quote their prices in U.S. dollars. This gives more certainty to the Malaysian customer and is the currency that most Malaysian importers will use to pay for all their imports.

The Malaysian banking system comprises Bank Negara Malaysia, commercial banks, finance companies, merchant banks, and discount houses.

PROMOTIONAL EVENTS

Event/Description	Organizer
11th Malaysian International Machinery Fair 2000 (Packaging and Food Processing) Putra World Trade Centre, Kuala Lumpur July 13-16, 2000 (Annual) Machinery, raw material, accessories	ES Mass Communication (M) Sdn Bhd No. 46A, Jalan 30A/119 Taman Taynton Cheras 56000 Kuala Lumpur Tel.: (60-3) 932-1922 Fax: (60-3) 933-1920 E-mail: esmass@po.jaring.my
MALBEX 2000, Malaysian International Building Exposition September 12-15, 2000 (Annual) Mines Exhibition Centre Kuala Lumbur, Malaysia MALBEX features a complete range of products, equipment and services for Malaysia's building and construction industry. It is part of the Bex series of building exhibitions organized by Reed Exhibition Companies in the Asia Pacific Region.	Reed Exhibition Sdn Bhd Suite 312, Block F Phileo Damansara 1 46350 Petaling Jaya, Selangor Darul Ehsan Tel.: (60-3) 756-6800 Fax: (60-3) 758-1800 E-mail: malbex@reed.po.my Internet: http://www.reedmal.com
METALTECH MALAYSIA 2000 May 24-28, 2000 (Annual) Putra World Trade Centre, Kuala Lumpur, Malaysia Products: Machine tools, shetmetal, surface & heat treatment sub-contracting & foundry, CAD/CAM, Metrology mould & die, Robotics, Welding and precision engineering.	Trade-Link Exhibition Services Sdn Bhd No. 12A, 1st Floor, Jalan SS12/1B 47500 Subang Jaya, Selangor Darul Ehsan Tel.: (60-3) 735-6086 Fax: (60-3) 735-6199 E-mail: ties@po.jaring.my
SMI – Showcase 2000 (Small and Medium Industries Showcase 2000) September 21-24, 2000 The Mines Exhibition Centre Sri Kembangan, Selangor Darul Ehsan Products: Electrical & electronics, Transportation & equipment, Machinery & engineering, elecommunication, Food & beverages, Furniture, Gift items, Cosmetic	Small and Medium Industries Development Corporation (SMIDEC) 701-D, Level 7, Town D, Uptown 5 5, Jalan SS21/39, Damansara Utama 47400 Petaling Jaya, Selangor Darul Ehsan Tel.: (60-3) 925-8585 Fax: (60-3) 925-9119 E-mail: smidec@smidec.gov.my Internet: http://www.smidec.gov.my/

Event/Description	Organizer
Woodex '99 Malaysia April 19-23, 2000 (Annual) Subang International Exhibition Centre Subang, Malaysia Woodex '99 Malaysia is the fourth presentation of the most important exhibition for the woodworking and forestry industry in Malaysia, and the second largest in Asia.	H-IMS Exhibitions and Conferences S/B 16.11 16th Floor, IGB Plaza No. 6 Jalan Kampar Off Jalan Tun Razak 50400 Kuala Lumpur, Malaysia Tel.: (60-3) 442-0833 Fax: (60-3) 442-0216 Contact: Henry Lee, Director
World Forestry Exhibition 2000 August 7-10, 2000 (Biennial) The Mines Exhibition Centre Sri Kembangan, Selangor Darul Ehsan Kuala Lumpur, Malaysia International exhibition of equipment, products and services related to forestry management and timber processing technology.	Reed Exhibitions Sdn Bhd Suite 312, Block F Phileo Damansara 1, Jalan 16/11 46350 Petaling Jaya, Selangor Darul Ehsan Tel.: (60-3) 460-3766 or 756-6800 Fax: (60-3) 758-1800 E-mail: info@reed.po.jaring.my

KEY CONTACTS AND SUPPORT SERVICES

Canadian Government Contacts

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50 O'Connor St., Suite 1100
Ottawa, ON K1A 0S6
Tel.: (613) 996-0034
Fax: (613) 995-2121
Internet: http://www.ccc.ca

Canadian Forest Service
506 West Burnside Rd.
Victoria, BC V8Z 1M5
Tel.: (250) 363-0600
Fax: (250) 363-0775

Canadian High Commission
Plaza OSK, Seventh Floor
172 Jalan Ampang
50450 Kuala Lumpur, Malaysia
Tel.: (60-3) 261-2000 ext. 3358
Fax: (60-3) 261-1270 or 261 3428
Contact: John Nojey, Sector Manager
E-mail: john.nojey@dfait-maeci.gc.ca
Internet: tradcan@po.jaring.my

Canadian International Development Association
Place du Portage
200 Promenade du Portage
Hull, QC K1A 0G4
Tel.: (819) 997-5456
Fax: (819) 953-5469

Department of Foreign Affairs and International Trade (DFAIT)
125 Sussex Dr.
Ottawa, ON K1A 0G2
General inquiries:
Tel.: 1-800-267-8376 or (613) 944-4000

Market Support Division (TCM)
Tel.: (613) 996-0684
Fax: (613) 943-8820
Contact: Clem Srour, Sectoral Officer, Resource Industries and Building Products
E-mail: clem.srour@dfait-maeci.gc.ca

Department of Foreign Affairs and International Trade
Southeast Asia Division (PSE)
Tel.: (613) 996-5824
Fax: (613) 944-1604
Contact: Jeff Blackstock, Desk Officer
E-mail: jeff.blackstock@dfait-maeci.gc.ca

Export Development Corporation
151 O'Connor St.
Ottawa, ON K1A 1K3
Tel.: 1-800-850-9626 or (613) 598-2500
Fax: (613) 598-6697
E-mail: export@edc4.edc.ca
Internet: http://www.edc.ca

Industry Canada
Forest, Metals and Building Products Branch
Rm. 1038B
235 Queen St.
Ottawa, ON K1A 0H5
Tel.: (613) 954-3039
Fax: (613) 941-8048

Natural Resources Canada
Canadian Forest Service
580 Booth Street, 7th Floor
Ottawa, Ontario K1A 0E4
Tel.: (613) 947-9013
Fax: (613) 947-9090
E-mail: cfsinfo@nrcan.gc.ca

Canadian Industry and Professional Associations

Alliance of Manufacturers and Exporters of Canada
1 Nicholas Street, Suite 1500
Ottawa, Ontario K1N 7B7
Telephone: (613) 238-8888
Facsimile: (613) 563-9218

Canadian Chamber of Commerce (CCC)
55 Metcalfe Street, Suite 1160
Ottawa, ON K1P 6N4
Tel.: (613) 238-4000
Fax: (613) 238-7643

Canadian Exporters' Association (CEA)
99 Bank Street, Suite 250
Ottawa, Ontario K1P 6B9
Telephone: (613) 238-8888
Fax: (613) 563-9218

Canadian Forestry Association
203 - 185 Somerset Street West
Ottawa, ON K2P 0J2
Tel.: (613) 232-1815
Fax: (613) 232-4210
Contact: Yves Ouelette, President
E-mail: cfa@cyberus.ca

Canadian Pulp and Paper Association
1155 Metcalfe St., 19th floor
Montreal, QC H3B 4T6
Tel.: (514) 866 6621
Fax: (514) 866 3035
E-mail: communic@cppa.ca

Centre for Advanced Wood Processing
Faculty of Forestry
University of British Columbia
2900 - 2424 Main Mall
Fax: (604) 822-9159
E-mail: cawp@interchange.ubc.ca

Malaysian Government Contacts in Canada

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Tel. (613) 241-5182
Fax (613) 241-5214
Contact: Datuk Omardin Bin Dato' Seri Abdul Wahab,
High Commissioner

Malaysian Government Contacts

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Level 3, Block A
Forestry Department Headquarters
Jalan Sultan Salahuddin
50660 Kuala Lumpur, Malaysia
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Fax: (60-3) 294-3499
E-mail: info@aifm.po.my

Department of Agriculture
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Jalan Sultan Salahuddin
50632 Kuala Lumpur, Malaysia
Tel.: (60-3) 298-2011
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Department of Environment
13 th Floor, Wisma Sime Darby
Jalan Raja Laut
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Tel.: (60-3) 293-8955
Fax: (60-3) 293-1480

Department of Forestry
Jalan Sultan Salahuddin
50660 Kuala Lumpur, Malaysia
Tel.: (60-3) 298-8244
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Malaysian International Chamber of Commerce and Industry
10th Floor
Wisma Damansara, Jalan Semantan
50490 Kuala Lumpur, Malaysia
PO Box 12921
Tel.: (60-3) 254-2677 or 255-1619
Fax: (60-3) 255-4946 or 256-1929
E-mail: micci@micci.po.my
Internet: http://www.micci.com.my/home.htm

Ministry of International Trade and Industry (MITI)
Block 10, Government Offices Complex
Jalan Duta
50622 Kuala Lumpur, Malaysia
Tel.: (60-3) 651-6022, 651-0033 or 651-8044
Fax: (60-3) 653-1303

Royal Customs and Excise Department
G-7th Floors, Block 11
Jalan Duta
50596 Kuala Lumpur, Malaysia
Tel.: (60-3) 651-6088 or 651-9088
Fax: (60-3) 651-2709

Registrar of Companies (ROC)
11th-17th Floors, Putra Place
Jalan Raja
50622 Kuala Lumpur, Malaysia
Tel.: (60-3) 443-3366
Fax: (60-3) 443-6031
The ROC is responsible for the administration of the Companies Act, including keeping files open for public inspection. All companies intending to do business in Malaysia are required to register with the ROC.

Sabah Ministry of Industrial Development
9th-11th Floor, Block C
Wisma Tun Fuad Stephens, Karamunsing
Locked Bag 2037
88622 Kota Kinabalu, Sabah, Malaysia
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Malaysian Industrial Development Authority (MIDA)
G, 3rd-6th, and 9th Floors
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Jalan Semantan
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50720 Kuala Lumpur, Malaysia
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Malaysian Industry and Professional Associations

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Tel.: (60-3) 298-8244
Fax: (60-3) 292-5657
E-mail: haron@forestry.gov.my

Forestry Department Headquarters Peninsular Malaysia
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Fax: (60-3) 636-7753
E-mail: webgroup@frim.gov.my
The Forest Research Institute of Malaysia, a governmental research organization, carries out national R&D activities on forestry and forest-based industries.

Malaysia Canada Business Council (MCBC)
Suite 2, 15th Floor, Plaza OSK
172 Jalan Ampang
50450 Kuala Lumpur, Malaysia
Tel.: (60-3) 264-5519/20
Fax: (60-3) 264-5521
E-mail: mcbc@pc.jaring.my
Contact: J.C. Lui, Manager, Operations

Malaysian Furniture Industry Council
19A, 19th Floor Menara PGRM
8 Jalan Pudu Ulu Cheras
56100 Kuala Lumpur, Malaysia
Tel.: (60-3) 982-2333
Fax: (60-3) 986-2296
E-mail: mfic@po.jaring.my

Malaysian International Chamber of Commerce and Industry
10th Floor, Wisma Damansara
Jalan Semantan
50490 Kuala Lumpur, Malaysia
Tel.: (60-3) 255-1619 or 254-2677
Fax: (60-3) 255-4946

Malaysian Panel-Products Manufacturers' Association
19D, 19th Floor Menara PGRM
8 Jalan Pudu Ulu Cheras
56100 Kuala Lumpur, Malaysia
Tel.: (60-3) 987-2152
Fax: (60-3) 981-1985
E-mail:mpma@tm.net.my

Malaysian Timber Council
18th Floor, Menara PGRM
Jalan Pudu Ulu, Cheras
56100 Kuala Lumpur, Malaysia
Tel.: (60-3) 981-1999
Fax: (60-3) 982-8999
E-mail: council@mtc.com.my

Malaysian Timber Industry Board (MTIB)
L14.01, Level 13-17, Menara PGRM
No. 8, Jalan Pudu Ulu, Cheras
56100 Kuala Lumpur, Malaysia
Tel.: (60-3) 982-2235
Fax: (60-3) 985-1477 or 985-1744
E-mail: mtib@po.jaring.my
Internet: http://www.jaring.my/mtib

Malaysian Industry and Professional Associations (Con't)

Malaysian Wood Industries Association
19B, 19th Floor Menara PGRM
8 Jalan Pudu Ulu Cheras
56100 Kuala Lumpur, Malaysia
Tel.: (60-3) 982-1778
Fax: (60-3) 982-1789
E-mail: ttfm@tm.net.my

Malaysian Wood Moulding and Joinery Council
19E, 19th Floor Menara PGRM
8 Jalan Pudu Ulu Cheras
56100 Kuala Lumpur, Malaysia
Tel.: (60-3) 983-7893
Fax: (60-3) 984-4129
E-mail: jomoco@tm.net.my

Malaysian Woodworking Machinery Association
49, Jalan SS24/8
Taman Megah
47301 Petaling Jaya Selangor, Malaysia
Tel.: (60-3) 755-8467

Sabah Department of Industrial Development and Research
7th - 8th Floor, Block C
Wisma Tun Fuad Stephens
Karamunsing
88300 Kota Kinabalu, Sabah, Malaysia
Tel.: (60-3) 088-214866, 088-213490 or 088-215035
Fax: (60-3) 088-216698 or 088-257814
E-mail: pgh.didr@sabah.gov.my

Sabah Forestry Department
PO Box 1407
Sandakan
90008 Sabah, Malaysia
Tel.: (60-3) 89-531523/4/5
Fax: (60-3) 89-531068
Contact: Robert Ong

Sabah Timber Industries Association (STIA)
Lot 25 & 26, Block E, 1st Floor, Phase III
Damai Plaza, Luyang Commercial Centre
W.D.T. 264
88999 Kota Kinabalu, Sabah, Malaysia
Tel.: (60-88) 249186 or 240387
Fax: (60-88) 233516
E-mail: stia@tm.net.my

Sarawak Forestry Department
Wisma Sumber Alam
Jalan Stadium
Petra Jaya
93660 Kuching, Sarawak, Malaysia
Tel.: (60-82) 442180
Fax: (60-82) 441377
Contact: Wisma Sumber Alam, Director of Forests

Sarawak Timber Association (STA)
10th Floor, Wisma Sumber Alam
Petra Jaya, 93050
GPO Locked Bag 3095
93760, Kuching, Sarawak, Malaysia
Tel.: (60-82) 442935 or 442936
Fax: (60-82) 441477 or 442408
E-mail: sta@pop.jaring.my

Sarawak Timber Industry Development Corporation
Wisma Sumber Alam, Petra Jaya
93050 Kuching, Sarawak, Malaysia
Tel.: (60-82) 443477
Fax: (60-82) 442691
E-mail: pusaka@po.jaring.my

The Timber Association of Sabah
No. 9 Ting 1, Block C
Sadong Jaya, Karamunsing
P.O. Box 13981
88846 Kota Kinabalu, Sabah, Malaysia
Tel.: (60-88) 246121/2/3
Fax: (60-88) 239077

Malaysian Industry and Professional Associations (Con't)

Universiti Putra Malaysia
Faculty of Forestry
43400 UPM Serdang, Malaysia
Tel.: (60-3) 948-6101
Fax: (60-3) 943-5385

Wood Industry Skills Development Centre (WISDEC)
Lot 167, Jalan 3
Kompleks Perabot Olak Lempit
42700 Banting, Selangor, Malaysia
Tel.: (60-3) 849-2924
Fax: (60-3) 849-2122

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Pusat Bandar Damansara
Bukit Damansara
50490 Kuala Lumpur, Malaysia
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Fax: (603) 255-5332

The Forest Industry Sectors of Malaysia and Indonesia – The Reality?
by Dennis Neilson and Robert Fenton
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Internet:
http://www.dana.co.nz/malay98/malaybroch.htm

Journal of Tropical Forest Products
A journal concerned with the development of technology in forest products including its associated sciences especially in relation to timbers and products of the tropical forests.
Published biannually (June and December)
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52109Kuala Lumpur, Malaysia
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Fax: (60-3) 636-7753
E-mail: hoyf@frim.gov.my

Maskayu
Subscription (inclusive for 12 issues)
A monthly timber bulletin with up-to-date news on the Malaysian timber industry as well as excerpts of the world timber industry. It also features monthly export statistics, information on timber prices, wood utilization, market analysis.

Maskayu
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50728 Kuala Lumpur, Malaysia
Tel.: (60-3) 982-2235
Fax: (60-3) 985-1477/1744
E-mail: mtib@po.jaring.my

Tropical Hardwood Machined Lumber Products Grading Rules
These rules serve as a reference for the grading of wooden mouldings and other machine processed timber.
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50728 Kuala Lumpur, Malaysia
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Internet: http://www.mtc.com.my/publication/bulletin/bulletin.html

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E-mail: zul@forestry.gov.my

Useful Internet Sites

Business in Malaysia: **http://www.business-in-malaysia.net/malaysia.htm**

Business Opportunities in East Malaysia:
http://www.nanyangmba.ntu.edu.sg/bsm/bsm_links/Labuan

Federation of Malaysian Manufacturers (FMM): **http://www.fmm.org.my**

Forest Resources: **http://www.forestry.gov.my/forestresources.html**

Forestry Contacts in Malaysia: **http://foresters.org/malaysia.htm**

Forestry Department Headquarters, Malaysia: **http://forestry.gov.my**

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Forestry in Sarawak: **http://www.sarawak.gov.my**

Forest Research Institute of Malaysia (FRIM): **http://frim.gov.my**

Institute for Development Studies (Sabah): **http://www.ids.org.my**

International Tropical Timber Organization: **http://www.itto.or.jp**

Malaysia – Country/Market Information: **http://www.dfait-maeci.gc.ca/asia/country/malaysia-e.asp**

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Malaysian Timber Council (MTC): **http://www.mtc.com.my**

Malaysian Timber Industry Board: **http://www.jaring.my/mtib**

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Timber Industry in Sabah: **http://www.infosabah.com.my/business/industry/timber.htm**

University Putra Malaysia (UPM): **http://www.upm.edu.my**

Appendix A. IRPA[6] Priority Areas for R&D in Forestry and Forest Products under the 8th Malaysia Plan (2001-2005)

PROGRAM	PRIORITY AREAS
SUSTAINABLE MANAGEMENT OF NATURAL FORESTS	• Criteria and indicators for sustainable forest management • Reduced-impact forest harvesting systems • Growth and yield assessments • Pre- and post-harvest silvicultural treatments • Rehabilitation of logged forests • Quantification of forest and non-timber resources • Remote sensing and GIS • Silviculture and management of rattan, bamboo and other commercial plants
SILVICULTURE AND MANAGEMENT OF FOREST PLANTATIONS	• Planting stock production • Plantation establishment and management • Silvicultural treatments • Genetics and tree improvement • Biotechnology • Growth and yield assessments • Pest, disease and disorder management • Site and soil suitability • Agroforestry techniques
CONSERVATION AND MANAGEMENT OF FOREST BIODIVERSITY	• Documentation of flora, fauna and habitat diversity • Ecology and conservation of forest biodiversity • Genetic diversity of flora and fauna • Protection and management of forest conservation areas
ENVIRONMENTAL ASPECTS OF FORESTRY	• Forest hydrology and watershed management • Role of forests in carbon sequestration • Establishment and maintenance of forest trees in the urban environment • Landscaping, ecotourism and recreation forestry • Rehabilitation of degraded and impoverished soils • Effect of pollution on forest trees • Impact of logging on the forest environment • Environmental impact assessment of forestry and other forest development activities
POLICY AND SOCIO-ECONOMIC ASPECTS OF FORESTRY	• Eco-labelling and certification • Resource evaluation • Environmental accounting • Policies with regard to forestry • Social and community forestry • Economics of forest plantations

[6] IRPA: Intensification of Research in Priority Areas

PROGRAM	PRIORITY AREAS
WOOD PROCESSING AND UTILIZATION TECHNOLOGY	• Machining and processing • Protection and seasoning • Environmental improvement • Timber in construction • Products development • Productivity improvement • Quality assurance
PROCESSING AND UTILIZATION TECHNOLOGY OF NON-WOOD RESOURCES (RATTAN & BAMBOO)	• Post-harvest technology • Product development • Quality enhancement
DEVELOPMENT OF PULP AND PAPER TECHNOLOGY	• Utilization of wood and non-wood fibres • New pulping processes • Waste paper utilization
DEVELOPMENT AND UTILIZATION OF WOOD COMPOSITES	• Development of wood composites • Utilisation of oil palm residues • Utilisation of wood residues
NATURAL PRODUCTS DISCOVERY	• Screening for phytochemicals in plants • Extraction and purification technologies for essential oils • Development of nutraceutical and herbal products • Agronomics of medicinal, herbal and aromatic plants
POLICY & SOCIO-ECONOMIC ASPECTS OF FOREST-BASED INDUSTRIES	• Market intelligence and diversification • Enhancement of forest-based SMIs • Policies with regard to forest-based industries • Marketing strategies for wood and non-wood products

Source: Forest Research Institute of Malaysia, 1999

Appendix B. Malaysian Agricultural and Forestry Machinery Manufacturers

IMS Kiln Drying Sdn Bhd
Lot 16 & 18 Jalan TPJ 4
Taman Perindustrian Jaya
47200 Subang
Selangor Darul Ehsan
Tel.: (60-3) 746-7588
Fax: (60-3) 746-7499
Contact: Francis Lim Sin Huat, Chief Executive Officer
Product: Kiln drying equipment

Golsta Sdn Bhd
Lot 4A-16, Jalan TTC 32
Taman Teknologi Cheng
75260 Melaka
Tel.: (6-06) 335-2153/4/5
Fax: (6-06) 335-2151
Contact: Teng Swee Eng, Managing Director
Product: Palm oil mills

Howard Alatpertanian Sdn Berhad
7482 Jalan Dua
Taman Selayang Baru
68100 Batu Caves
Selangor Darul Ehsan
Tel.: (60-3) 6138-6677
Fax: (60-3) 6138-8844
Contact: Mr A Nielsen, Managing Director
Product: Turf maintenance equipment

Kwan Cheong Engineering (1976) Sdn Bhd
312 Jalan Sungai Besi
57100 Kuala Lumpur
Tel.: (60-3) 221-5612/ 7660/ 5532
Fax: (60-3) 221-9378
Contact: YBhg Tan Sri Dato' Soong Siew Hoong, Managing Director
Product: Rubber processing machinery

Agricultural & Industrial Machinery Sdn Bhd
Ulu Tiram Estate
80990 Johor Bahru
Johor Darul Takzim
Tel.: (6-07) 861-4707
Fax: (6-07) 861-6417
Contact: Tuan Hj Ghazi bin Atan, Director
Product: Agriculture carriers

PMT Industries Sdn Bhd
33, Lingkungan Raja Lumu
Kawasan Perindustrian Pandamaran
42000 Port Klang
Selangor Darul Ehsan
Tel.: (60-3) 367-1357/8
Fax: (60-3) 367-1578
Contact: Teoh Kok Cheng, Managing Director
Product: Palm oil mill equipment, spares and services

Guthrie Industries Malaysia Sdn Bhd
4th Mile, Jalan Kampong Jawa
P O Box 2004
41990 Klang
Selangor Darul Ehsan
Tel.: (60-3) 5161-1101
Fax: (60-3) 5161-1981
Contact: En Abdul Wahab bin Suboh, General Manager
Product: Palm oil mill construction and equipment

Top-Mech Cranes & Hoists (M) Sdn Bhd
No 6 Lorong Abdul Manan 5
Jalan Manan Off Jalan Meru
41050 Klang
Selangor Darul Ehsan
Tel.: (60-3) 392-2689
Fax: (60-3) 392-5963
Contact: Ter Leong Yap, Managing Director
Product: Cranes and hoists

AE Automotion (M) Sdn Bhd
10 & 12, Jalan Mas 6
Taman Cheras Mas
Batu 8, Cheras
43200 Selangor Darul Ehsan
Tel.: (60-3) 9076-1333
Fax: (60-3) 9076-9328
Contact: Jimmy Lim, Managing Director
Product: Handling equipment

Torsco Berhad
Lot 11004, 4 3/4 Miles, Jalan Lahat
31500 Lahat
Perak Darul Ridzuan
Tel.: (60-3) 05-3214644
Fax: (60-3) 05-3224402
Contact: Loo Ah Hooi, Managing Director
Product: Lifting and hoisting equipment, cranes

Tectona (M) Sdn Bhd
(104745-P)
Box 271, Lot 4.91
4th Floor, Wisma Central, Jalan Ampang
50450 Kuala Lumpur, Malaysia.
Tel.: (60-3) 2161-0979, 2162-3001
Fax: (60-3) 2161-8073
Contact: Michael H. S. Cheng
E-mail: tectona_sb@hotmail.com
Internet: http://www.tectona.com.my
Product: Waste recycling equipment, mobile wood chipping plant, log peeler and debarker

Autoveyor (M) Sdn Bhd
No 25 Jalan Riang 20
Taman Gembira
81200 Johor Bahru
Johor Darul Takzim
Tel.: (60-3) 07-335-3377
Fax: (60-3) 07-335-7377
Contact: Richard Koh, Director
Product: Material handling equipment

Modern Handling Equipment Sdn Bhd
Lot 32 & 33, Jalan Bagan Nira 26/8
Hicom Industrial Estate Seksyen 26
40000 Shah Alam
Selangor Darul Ehsan
Tel.: (60-3) 511-2208
Fax: (60-3) 511-2088
Contact: Peter Boo, Managing Director
Product: Material handling and conveyor systems

EP Polymers (M) Sdn Bhd
No 8 & 10, Jalan Jurutera, Seksyen U1/23
Hicom Glenmarie Industrial Estate
40150 Shah Alam
Selangor Darul Ehsan
Tel.: (60-3) 703-6663
Fax: (60-3) 704-9761
Contact: En Hamidon Abdullah, Executive Chairman
Product: Agricultural accessories

Appendix C. Malaysian Forestry Machinery and Equipment Distributors

Eng Seng Industrial, Supplies Co.
65, Jalan Radin Anum Satu
Bandar Baru Sri Petaling
57000 Kuala Lumpur
Tel.: (60-3) 958-6688
Fax: (60-3) 958-6600

Flamingo Machinery Trading
105-B, Jalan SS 15/5A
47500 Subang Jaya
Selangor Darul Ehsan, Malaysia

Furnicorn Machinery Sdn.
Bhd48m, Jalan 6/116B
Kuchai Entrepreneurs' Park
Off Jalan Kuchai Lama
58200 Kuala Lumpur, Malaysia
Tel.: (60-3) 783-9127 or 783-9129
Fax: (60-3) 781-5499

Hong Liong Sdn. Bhd.
13, Jalan Permata
Taman Maluri Off Jalan Bakri
84000'Muar, Johor, Malaysia
Tel.: (60-3) 912821 or 925822
Fax: (60-3) 910261

Integrated Marketing & Supplies Pte. Ltd.
No. 9, 3rd Floor, Jalan SS I 5/BA
47500 Subang Jaya, Selangor, Malaysia
Tel.: (60-3) 733-0106 or 736-5597
Fax: (60-3) 734-1397
Contact: Chin Khoon Artz, Technical Sales Executive

Kian Tech Machinery Hardware Trading
Lot 427, Batu 13 1/2
Jalan Kuala Selangor
Bandar Baru Sungei Buloh
47000 Selangor Darul Ehsan, Malaysia
Tel.: (60-3) 656-3396
Fax: (60-3) 656-4391

Kien Hap Shing Engineering Sdn. Bhd.
49, Jalan SS 24/8
Taman Mehah
47301 Petaling Jaya, Malaysia
Tel.: (60-3) 775-8555 or 775-8467
Fax: (60-3) 775-1882

Perniagaan Seng Dee (Malaysia)
Sdn. Bhd. 82, Jalan Bakri Baur 1 1/4
8400 Muar, Johore, West Malaysia
Tel.: (60-3) 919199 or 06-919200
Fax: (60-3) 910025
Contact: Ng Keng Kiat, Sales Manager

STJ Trading Sdn. Bhd.
No. 31 Persiaran Mewah
Kaw Penndustfian Bandar Tun Razak,
Cheras
P.O. Box 12589
50782 Kuala Lumpur, Malaysia
Tel.: (60-3) 931-0144 or 937-8616
Fax: (60-3) 442-6152

Syarikat Petaling Corporation Sdn.
Bhd. 22, Jalan
54 Desa Jaya, Kepong
52100 Kuala Lumpur, Malaysia
Tel.: (60-3) 636-3801
Fax: (60-3) 634-6940 or 634-0211
Contact: Ng Tian Poh, Managing Director

Sykt. Khen Shing M Sdn. Bhd.
Lot 2472, Batu 4 1/2
Jalan Sungei Besi
5 7 100 Kuala Lumpur, Malaysia
Tel.: (60-3) 781-3684 or 781-0735
Fax: (60-3) 781-3449

Teknik Suasa Sdn. Bhd.
B-1, 2-5 Batu 5 3/4 Jalan Kuchai Lama
Pejabat Pos Petaling
58200 Kuala Lumpur, Malaysia
Tel.: (60-3) 782-2111
Fax: (60-3) 781-2266

Unigoh Sdn. Bhd.
20, Jalan SS 19/IG, Sri Intan
47500 Subang Jaya
Selangor Darut Ehsan, West Malaysia
Tel.: (60-3) 733-1681
Fax: (60-3) 733-6684
Contact: Wong Tat Yip, Sales & Service Executive

Wadkin Asia (M) Sdn. Bhd.
#6, Jalan PJS Level 8
Bandar Sunway
46150 Petaling Jaya
Tel.: (60-3) 733-4711 or733-4702
Fax: (60-3) 733-4702

Woodmac Machinery Sdn. Bhd.
16, Lebuhraya Kapal off Chain Ferry
12100 Butterworth, Penang, Malaysia
Tel.: (60-3) 432-4632

READER EVALUATION

Please help the Market Research Centre to produce market reports which meet your information needs by completing this evaluation form and returning it by fax (613) 943-1103. Thank you for your valuable input.

1. How did you obtain a copy of this market report?
   - ☐ InfoCentre FaxLink system
   - ☐ InfoCentre help line
   - ☐ Local government office
   - ☐ Government Internet site
   - ☐ Other: _____

2. How would you describe this market report?

	Strongly agree	Agree	No opinion	Disagree	Strongly disagree
Useful	☐	☐	☐	☐	☐
Complete	☐	☐	☐	☐	☐
Well organized	☐	☐	☐	☐	☐
Well written	☐	☐	☐	☐	☐
Ideal length	☐	☐	☐	☐	☐

3. In what form do you prefer to obtain these reports?
   - ☐ Print
   - ☐ Electronic

4. Based on the information in this report, what specific action(s) does your organization plan to take in this market? Check all that apply.
   - ☐ Seek an agent/distributor
   - ☐ Visit the market
   - ☐ Do more research
   - ☐ Other: _____
   - ☐ Contact Canadian trade office abroad
   - ☐ Participate in a trade show abroad
   - ☐ Nothing

5. What other market reports would be of benefit to your organization? Please identify specific products and countries. _____

6. Which of the following categories best describes your organization? Check one only.
   - ☐ Processor/manufacturer
   - ☐ Trading house
   - ☐ Export service provider
   - ☐ Industry/trade association
   - ☐ Government
   - ☐ Student/academia
   - ☐ Consultant
   - ☐ Other: _____

7. What were your organization's total sales last year, in Canadian dollars?
   - ☐ Less than $10 million
   - ☐ More than $50 million
   - ☐ $10 million to $50 million
   - ☐ Not applicable

Additional comments/suggestions for improvement: _____

OPTIONAL — The name of your organization is: _____